H10

P700/P700SH

Photo: P700SH

STEREO TURNTABLE SYSTEM

SPECIFICATIONS

Turntable

Platter:	31 cm (12¼ in.), aluminum-alloy diecast
Motor:	Linear BSL (brushless and slotless) motor
Drive system:	Direct drive
Control system:	Crystal lock control, magnedisc servo control system
Speed:	$33^{1}/_{3}$ rpm, 45 rpm
Starting characteristics:	Comes to nominal speed within a half revolution ($33^{1}/_{3}$ rpm)
Wow and flutter:	0.02% (WRMS)*, 0.025% (WRMS) ±0.04% (DIN)
Signal-to-noise ratio:	78 dB (DIN-B)
Load characteristics:	0% up to 100 g stylus force (at lead-in groove of a record)
Speed deviation:	Within ±0.003%
Automatic system:	Lead-in, return, reject, repeat,

Tonearm

Type:	Statically balanced
Pivot-to-stylus length:	216.5 mm (8½ in.)
Overall arm length:	300 mm ($11^{7}/_{8}$ in.)
Overhang:	16.5 mm ($^{21}/_{32}$ in.)
Tracking error:	(+) 3° – (–) 1°
Stylus force adjustment range:	0 – 2.5 g
Cartridge shell weight:	5 g
Cartridge weight range:	(including supplied shell) 7.5 – 11.5 g 11 – 15 g (with extra weight)

— Continued on page 2 —

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* This new measuring method concerns only the turntable assembly, including the platter. It excludes wow and flutter caused by the tonearm, the cartridge, or the record. Measured by obtaining signal from magnetic pick-up head.

SERVICE MANUAL

H10

Cartridge

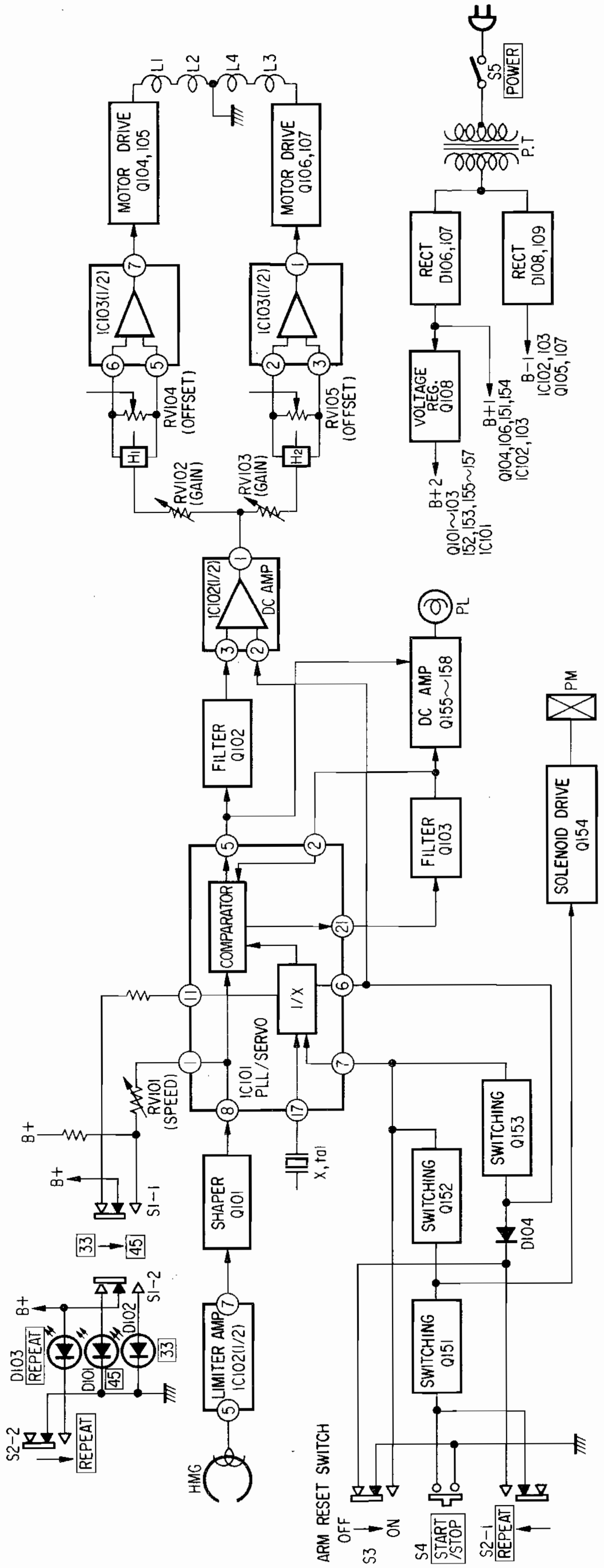
Type: Moving-magnet
Frequency response: 10 – 30,000 Hz
Channel separation: 25 dB at 1 kHz
Output voltage: 3 mV at 1 kHz, 5 cm/sec, 45°
Load impedance: 50 kΩ – 100 kΩ
Tracking force: 1.0 – 2.0 g (1.5 g recommended)
Stylus: Sony ND-200G
Elliptical (0.3 x 0.8 mil), nude diamond
Weight: 3.5 g

General

Power requirements: 220 V ac, 50/60 Hz
Power consumption: 12 W
Dimensions: Approx. 430 x 135 x 375 mm (w/h/d)
(17 x 5$^{3}/_{8}$ x 14¾ in.)
including projecting parts and controls
Weight: Approx. 7 kg (15 lbs 7 oz), net
Approx. 8.6 kg (19 lbs), in shipping carton

SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM

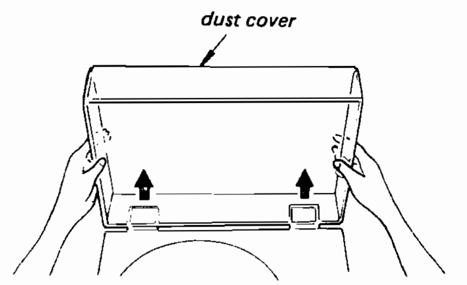

MOTOR DRIVE Q104,105
MOTOR DRIVE Q106,107
L1
L2
L4
L3
IC103(1/2)
IC103(1/2)
RV104 (OFFSET)
RV105 (OFFSET)
RV102 (GAIN)
RV103 (GAIN)
H1
H2
IC102(1/2) DC AMP
FILTER Q102
COMPARATOR
1/X
IC101 PLL/SERVO
RV101 (SPEED)
X,tal
SHAPER Q101
LIMITER AMP IC102(1/2)
HMG
S5 POWER
P.T
RECT D106,107
RECT D108,109
VOLTAGE REG. Q108
B+2 Q101~103 152,153,155~157 IC101
B+1 Q104,106,151,154 IC102,103
B−1 IC102,103 Q105,107
PL
DC AMP Q155~158
FILTER Q103
PM
SOLENOID DRIVE Q154
SWITCHING Q153
SWITCHING Q152
SWITCHING Q151
D104
B+
S1-1
S1-2
33
45
D103 REPEAT
D101
D102
S2-2
REPEAT
ARM RESET SWITCH
OFF ON
S3
S4 START/STOP
S2-1 REPEAT

SECTION 2
DISASSEMBLY

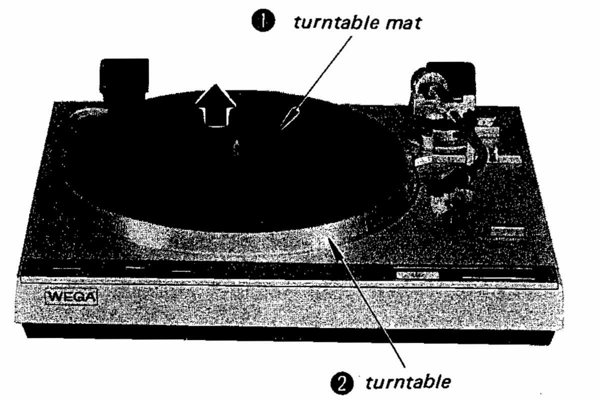
2-1. REMOVAL

Note: Follow the disassembly procedure in the numerical order given.

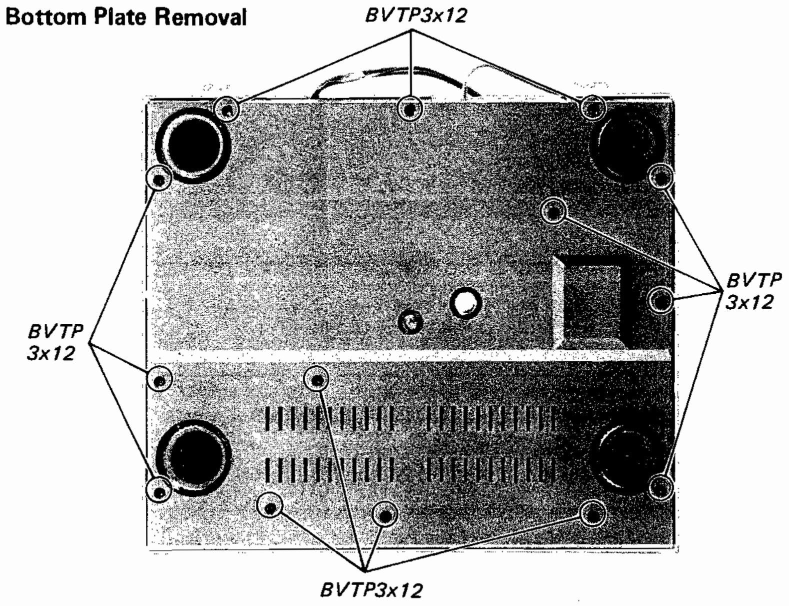
Dust Cover Removal



Turntable Removal

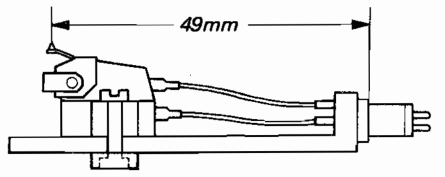

❶ turntable mat
❷ turntable
WEGA

Bottom Plate Removal

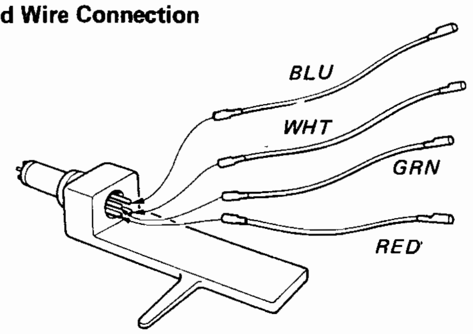

BVTP3x12
BVTP 3x12
BVTP 3x12
BVTP3x12

Cartridge Installation

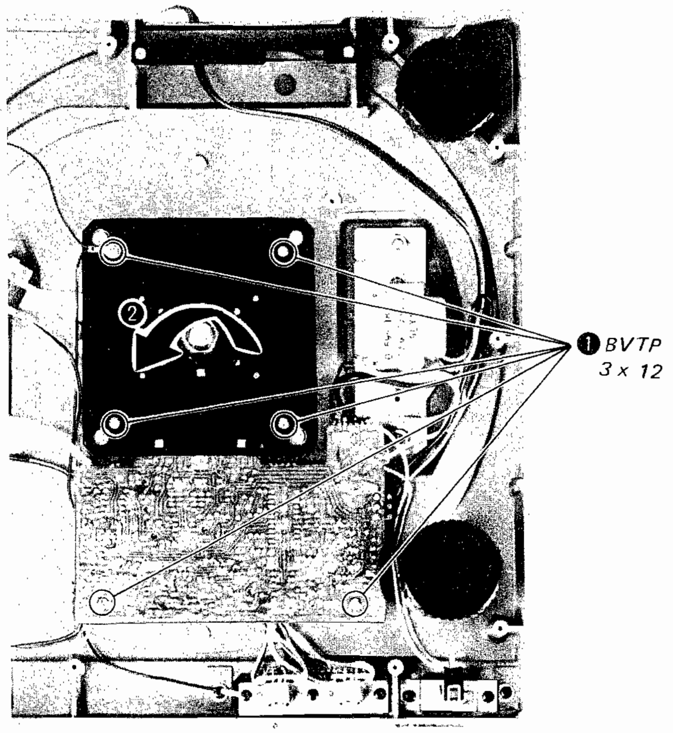
Fasten the screws lightly so that the cartridge can slide for adjustment.



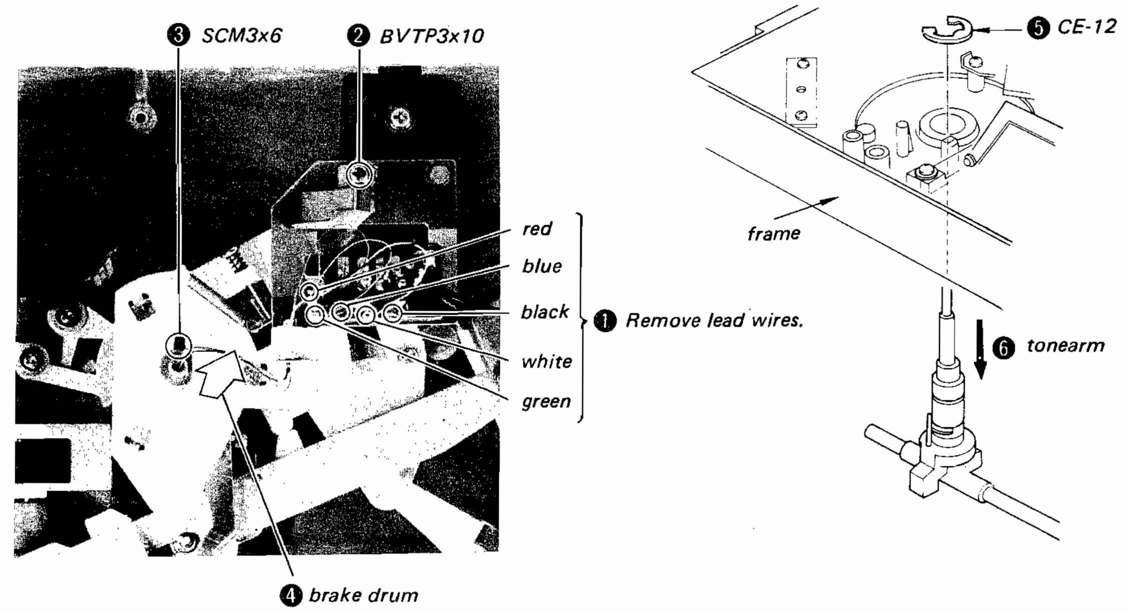
Lead Wire Connection


BLU
WHT
GRN
RED

Motor Removal

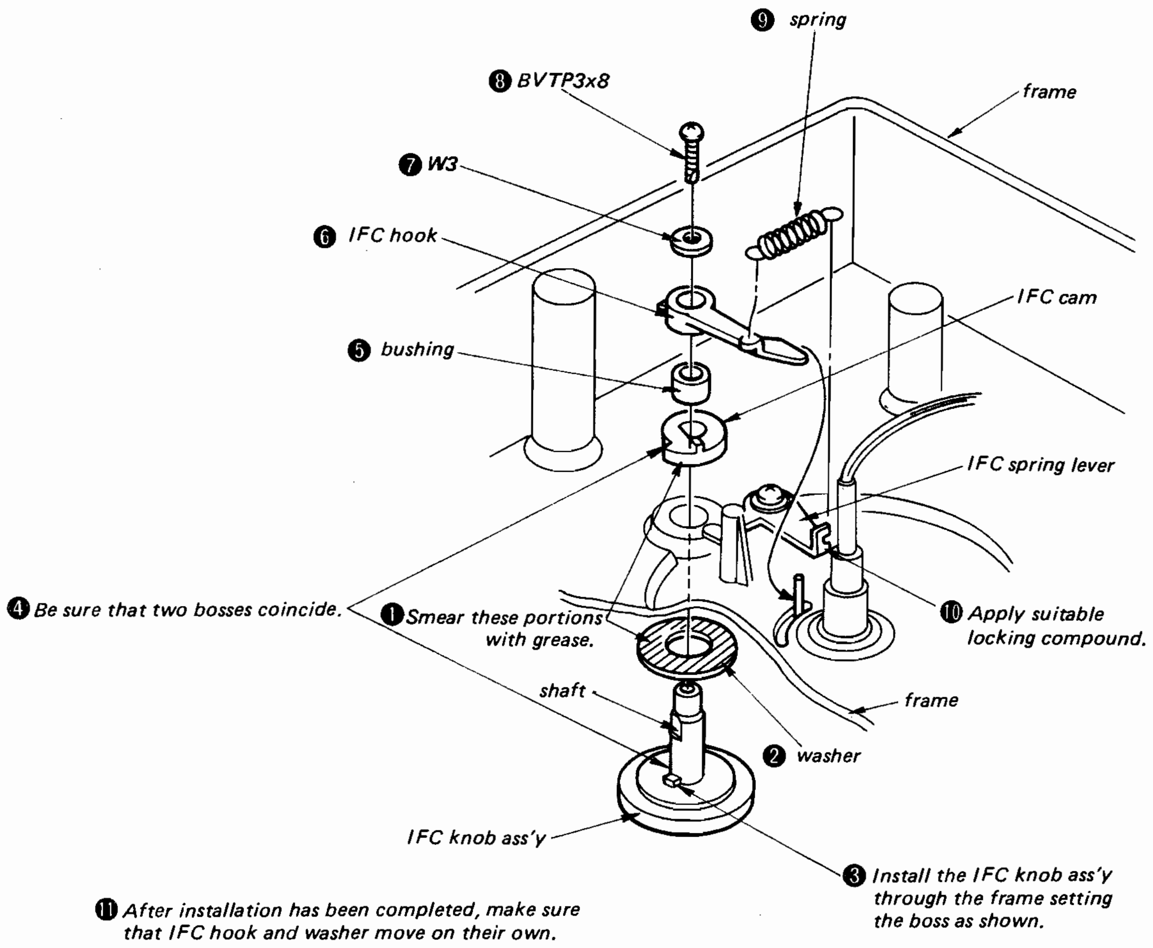

②
❶ BVTP
3 x 12

Tonearm Removal


❸ SCM3x6
❷ BVTP3x10
red
blue
black
white
green
❶ Remove lead wires.
❹ brake drum
❺ CE-12
frame
❻ tonearm

2-2. INSTALLATION

IFC Knob Assembly Installation


❾ spring
❽ BVTP3x8
frame
❼ W3
❻ IFC hook
IFC cam
❺ bushing
IFC spring lever
❹ Be sure that two bosses coincide.
❶ Smear these portions with grease.
❿ Apply suitable locking compound.
shaft
frame
❷ washer
IFC knob ass'y
❸ Install the IFC knob ass'y through the frame setting the boss as shown.
⓫ After installation has been completed, make sure that IFC hook and washer move on their own.

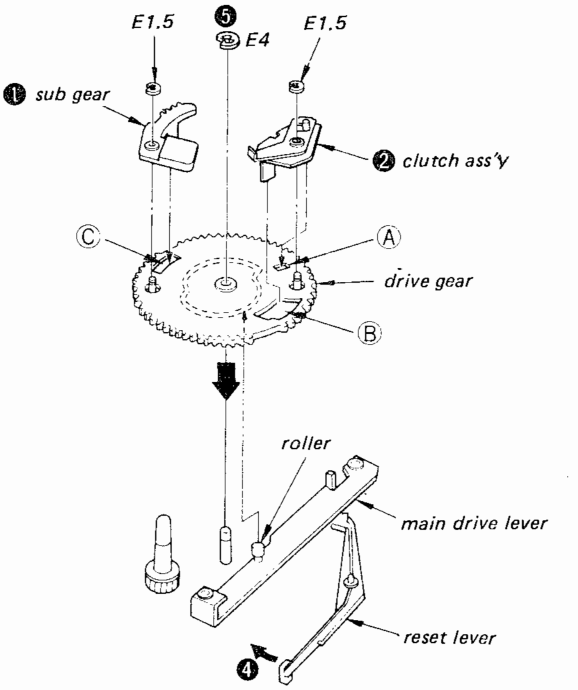
Drive Gear Installation

❶ Install the sub gear in hole Ⓒ with E1.5.

❷ Install the clutch ass'y in holes Ⓐ and Ⓑ with E1.5.

❸ After installation(❶ , ❷)has been completed, make sure they move on their own.

❹ Install the drive gear pushing the reset lever in the direction of arrow, when the roller of the main drive lever fits the gutter of the drive gear.

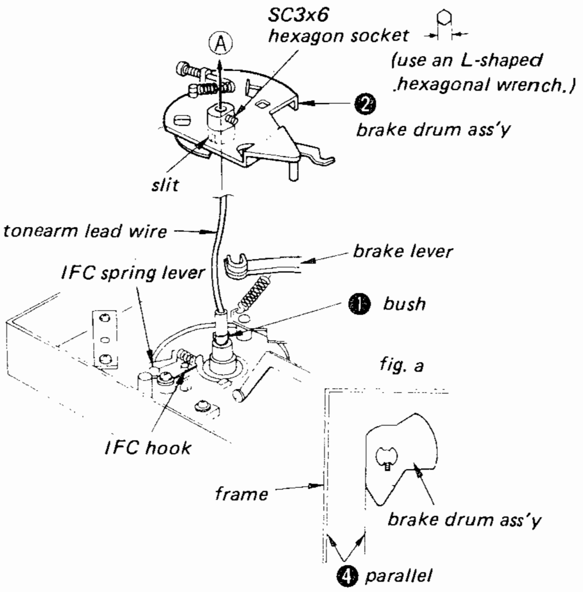

E1.5
❺
E4
E1.5
❶ sub gear
❷ clutch ass'y
Ⓒ
Ⓐ
drive gear
Ⓑ
roller
main drive lever
reset lever
❹

Brake Drum Installation

❷ Thread the brake drum ass'y with the tonearm lead wires. Pull the wires out in the direction of the arrow Ⓐ .

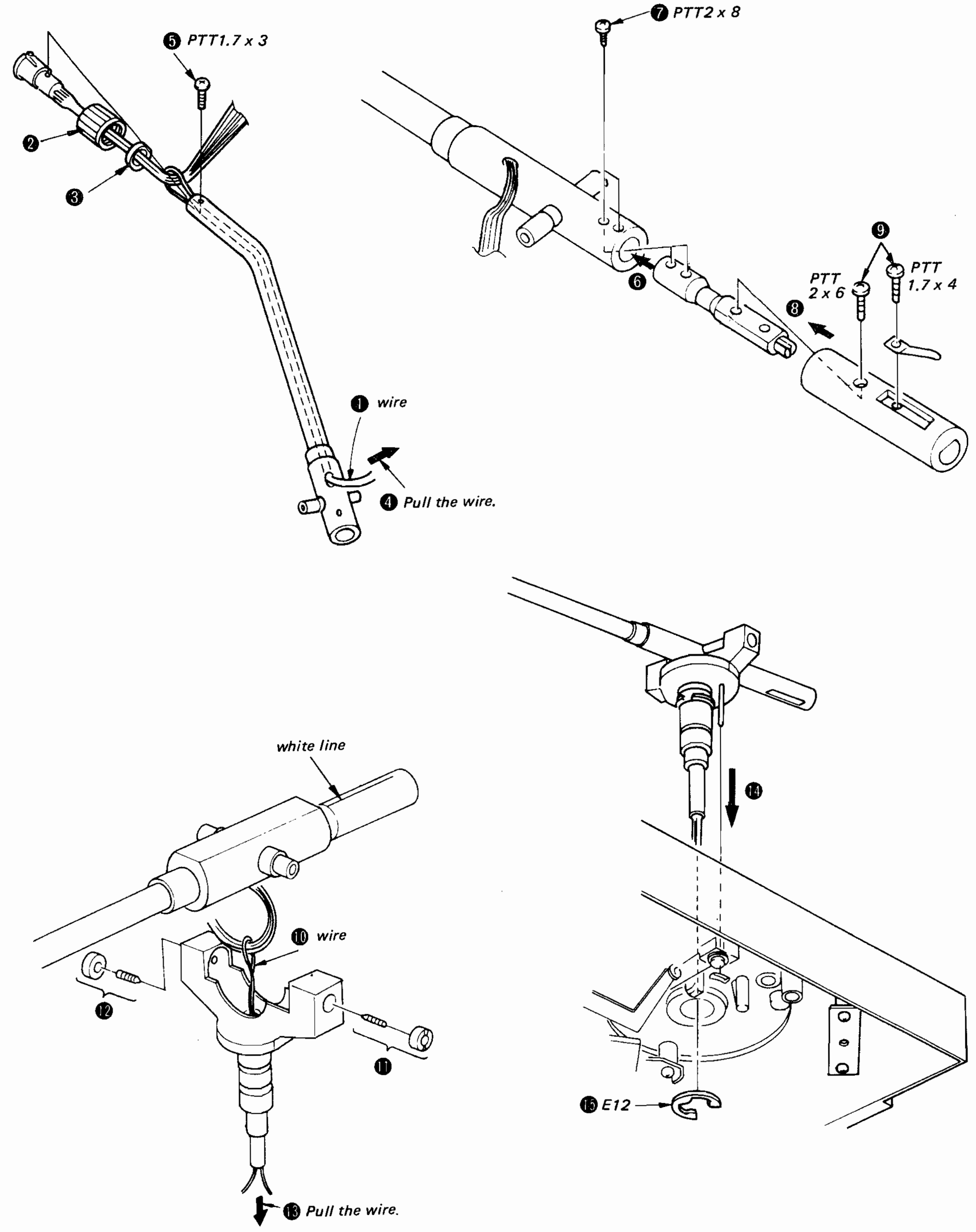
❸ Set the tonearm on the arm rest.

❹ Adjust the position of the brake drum to obtain the same height as the brake lever and also, so that the straight side of drum is parallel with the frame (See fig. a). Fix the drum by turning the set screw (SC3 x 6).


SC3x6
hexagon socket
(use an L-shaped hexagonal wrench.)
Ⓐ
❷
brake drum ass'y
slit
tonearm lead wire
brake lever
IFC spring lever
❶ bush
fig. a
IFC hook
frame
brake drum ass'y
❹ parallel

TONEARM INSTALLATION

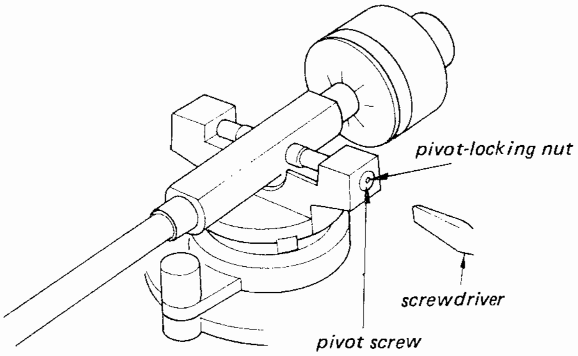
Tonearm Pipe Installation

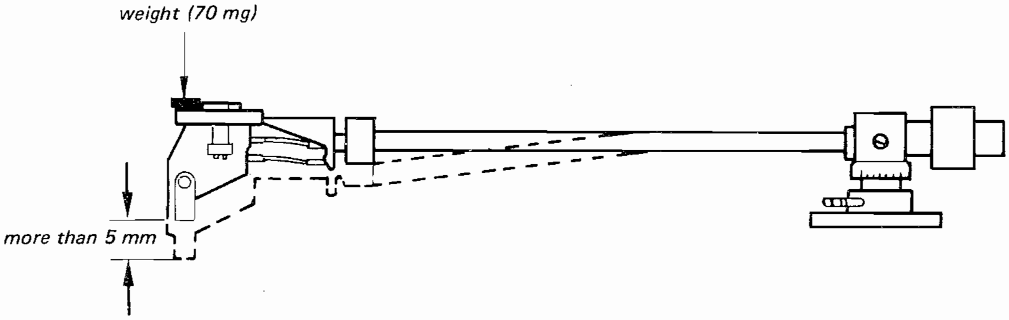

❺ PTT1.7 x 3
❷
❸
❶ wire
❹ Pull the wire.
❼ PTT2 x 8
❻
❾
PTT 2 x 6
PTT 1.7 x 4
❽
white line
❿ wire
⓬
⓫
⓭ Pull the wire.
⓮
⓯ E12

Longitudinal Sensitivity Adjustment

1. Make the longitudinal balance adjustment of tonearm.
2. Repeating the following procedures, adjust the pivot screw and the lock nut.
   a. When the 70 mg weight is placed on the top of the shell, the tonearm sinks more than 5 mm (measured at stylus-tip).
   b. When the weight is removed, the tonearm returns horizontally.

Note: Rotate the left and right pivot screws by same numbers of turns.


pivot-locking nut
screwdriver
pivot screw


weight (70 mg)
more than 5 mm

MOTOR INSTALLATION

The motor and the servo amp board are assembled together. If found defective, disassemble the motor block as shown in Fig. A and repair it.

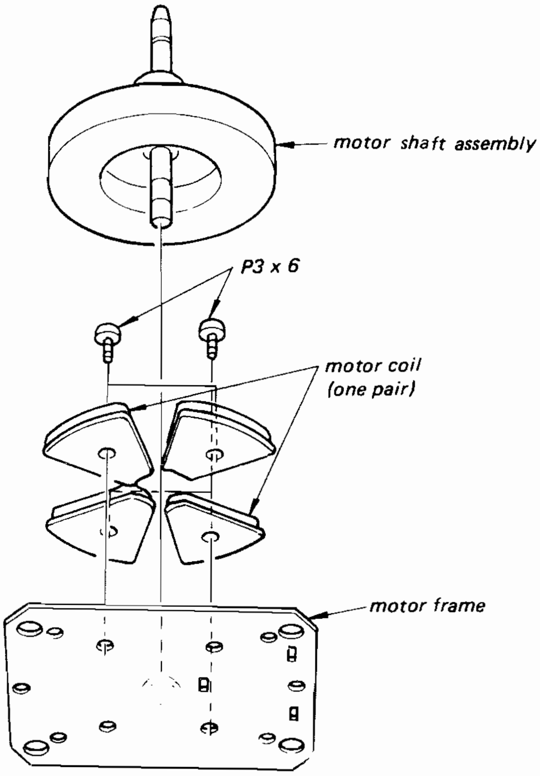

motor shaft assembly
P3 x 6
motor coil (one pair)
motor frame

Fig. A

1. When the motor shaft is replaced, apply two drops of the SONY oil (OL-2KA) as shown below.
2. When the motor bearing and the thrust retainer plate are replaced, apply two drops of the SONY oil (OL-2KA) as shown below.

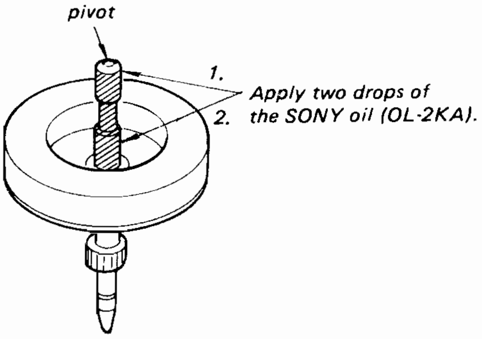

pivot
1.
2.
Apply two drops of the SONY oil (OL-2KA).

Fig. B

3. The motor coils are composed of two pairs.
   a). Mount the coils on the motor frame so that the boss of the coil is placed in the hole of the frame as illustrated in Fig. C.
   b). Push the coils in the direction of arrow and tighten the screws.
   c). Lay the leads of the coils as shown in Fig. D and fix the leads in the slot between the portions marked by *in Fig. E.
4. Insert the motor shaft assembly slowly in the motor bearing so that the motor shaft is not attracted by strong magnetic field strength.

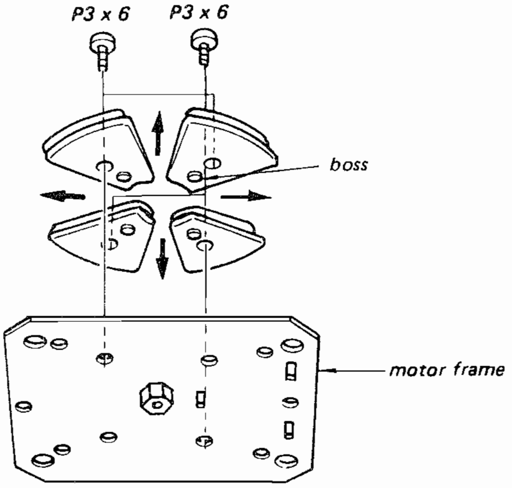


Fig. C

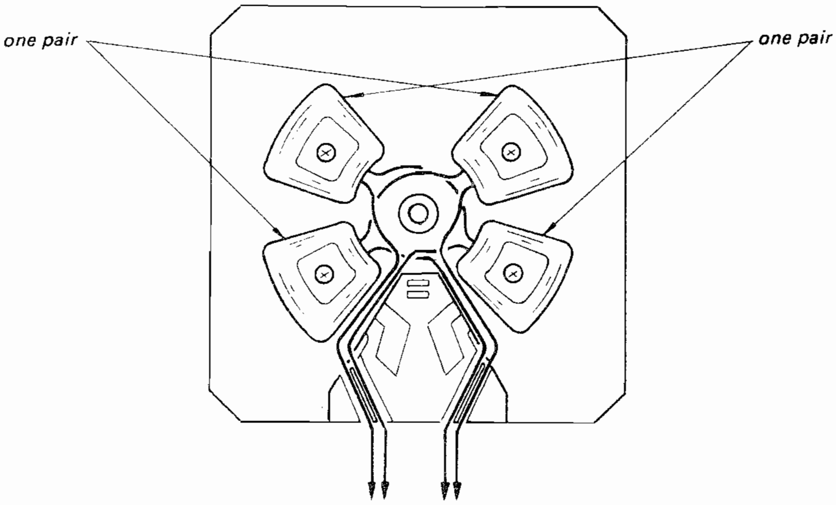


Fig. D

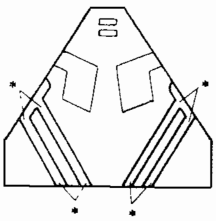


Fig. E

SECTION 3

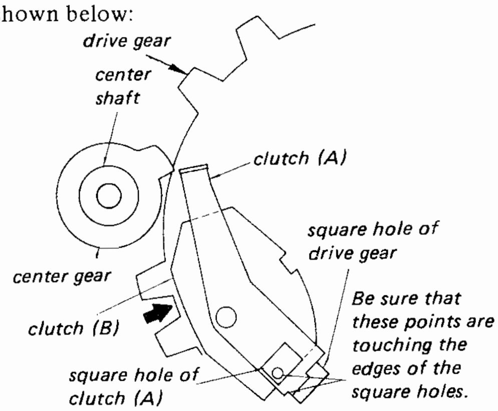
ADJUSTMENTS

3-1 MECHANICAL ADJUSTMENTS

Automatic Return Position Adjustment

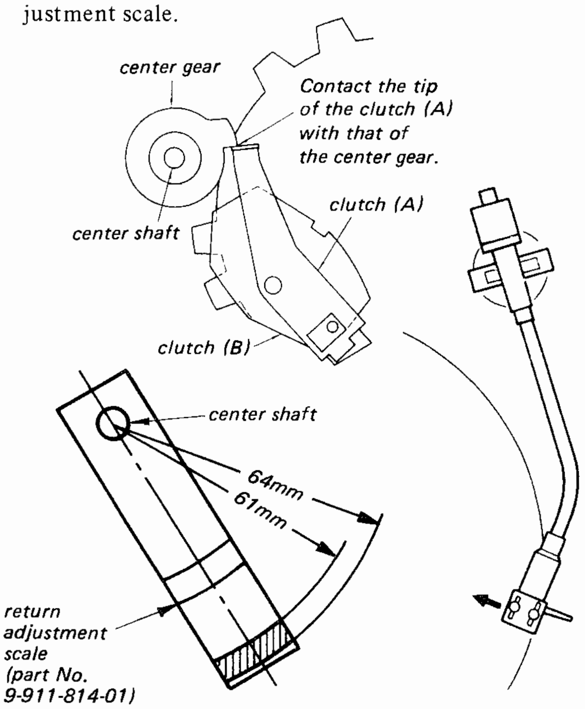
- Unplug the power cord.

1. Remove the turntable mat and turntable.
2. Put the tonearm on the arm rest.
3. Turn the center shaft clockwise by hand and turn the drive gear one turn by engaging the center gear with the drive gear. Then place the drive gear in the disengaging position.
4. Push the clutch (B) in the direction of the arrow and place the clutch (A) and cluth (B) as shown below:


drive gear
center shaft
clutch (A)
square hole of drive gear
center gear
clutch (B)
square hole of clutch (A)

Be sure that these points are touching the edges of the square holes.

5. Put the return adjustment scale (Part No. 9-911-814-01) on the center shaft.
6. Move the tonearm toward the center shaft by hand so that the clutch (A) is positioned as shown below and confirm that the stylus is located on the hatched area of the return adjustment scale.

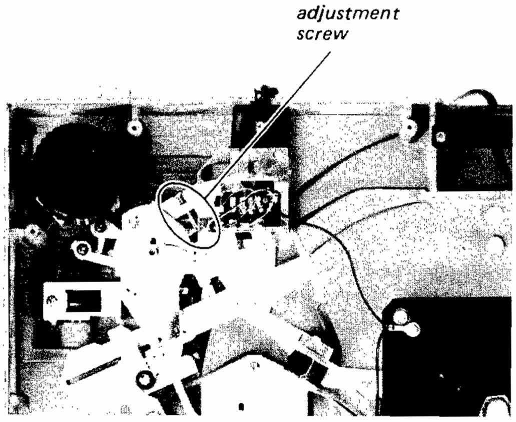

center gear
center shaft
clutch (A)
clutch (B)
center shaft
64mm
61mm
return adjustment scale (part No. 9-911-814-01)

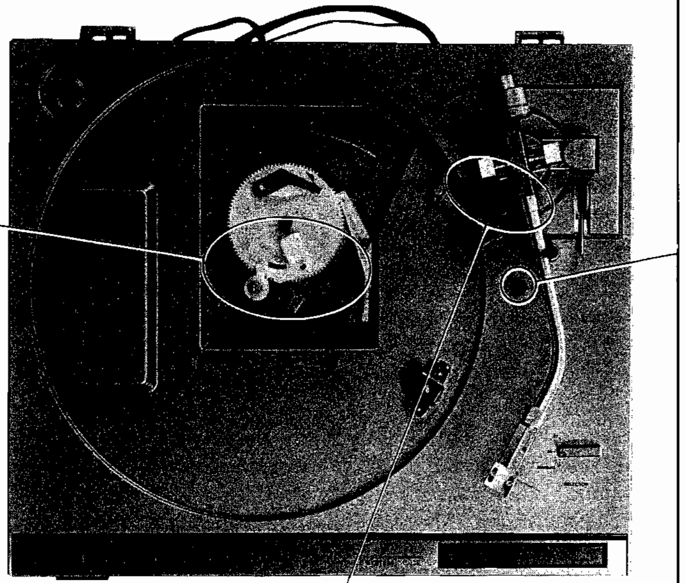
Contact the tip of the clutch (A) with that of the center gear.

7. If necessary, adjust the adjustment screw.

Stylus Position	Adjustment Screw
outside of hatched area	clockwise
inside of hatched area	counterclockwise
on hatched area	correct

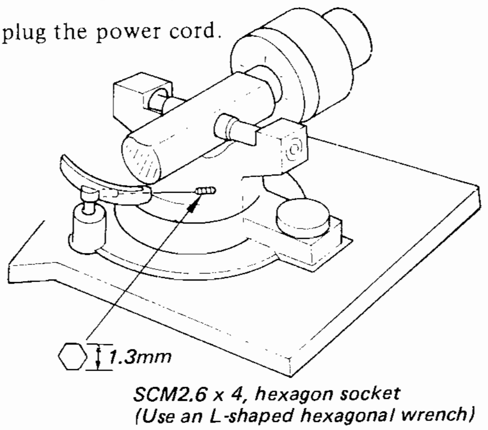
8. Play the automatic-return test record (YFSC-16, A side "C-3") and confirm that the tonearm returns at count 4 to 11.


adjustment screw



Arm Lifter Height Adjustment

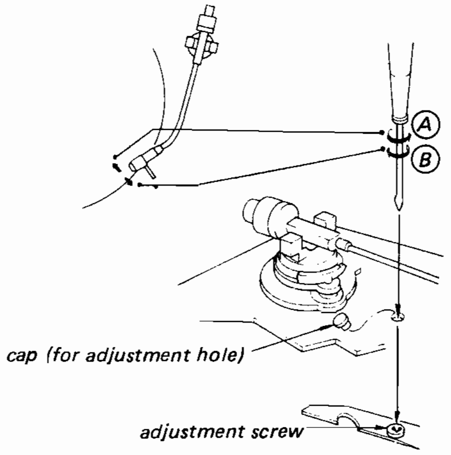
- Unplug the power cord.


1.3mm
SCM2.6 x 4, hexagon socket
(Use an L-shaped hexagonal wrench)

The clearance between the stylus tip and the record on the rubber mat should be 7–11mm ($^5/_{16}$ – $^7/_{16}$").

Stylus Drop-point Adjustment

- Remove the cap from the adjustment hole.


Ⓐ
Ⓑ
cap (for adjustment hole)
adjustment screw

1. Set the record size selector lever to the 30 (12") position and make sure that the stylus gets down on the specified point of the test record.

   test record: YFSC-16

Record size selector lever position	Count of drop-point
30 (12")	4 to 16
25 (10")	6 to 24
17 (7")	7 to 25

2. If necessary, insert the screwdriver into the hole and adjust the drop-point by turning the adjustment screw.

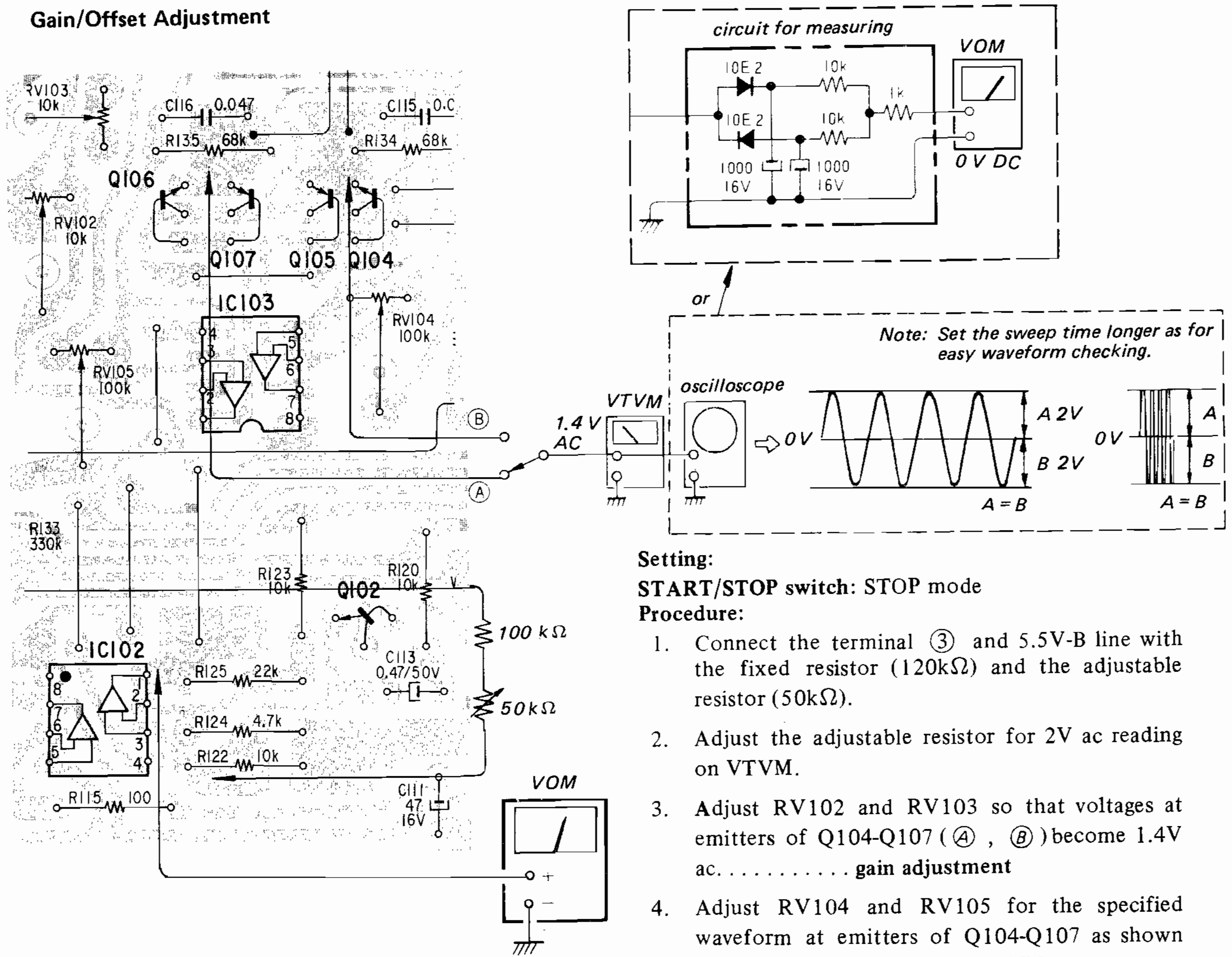
   To change the drop-point inward:
   Turn the adjustment screw slightly counterclockwise Ⓐ.
   To change the drop-point outward:
   Turn the adjustment screw slightly clockwise Ⓑ.

3. Once it is properly adjusted with a 30 cm (12") record, the drop-point will be correct for 17 cm (7") and 25 cm (10") records as well.

Note: The stylus drop-point is changed to about 12 mm (½") by one turn of the adjustment screw.

3-2. ELECTRICAL ADJUSTMENTS

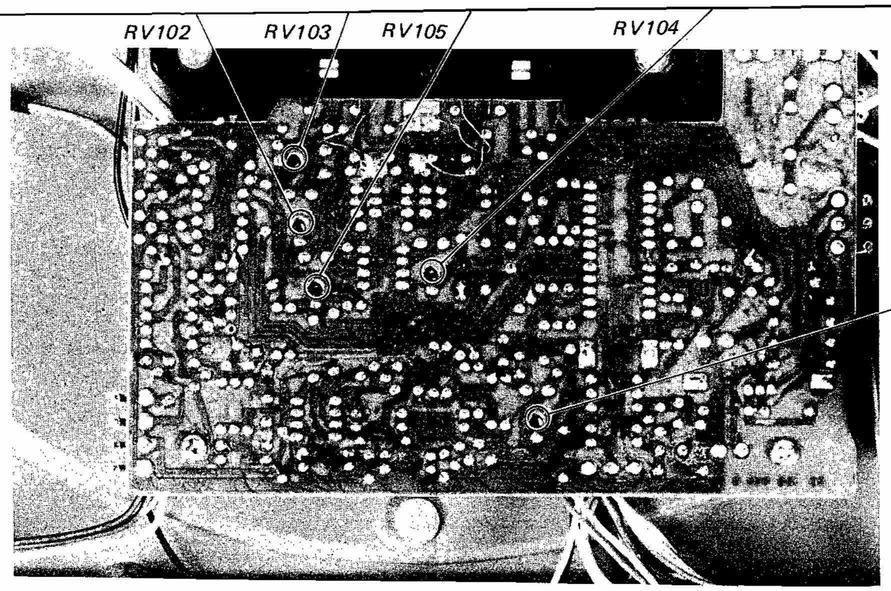
Gain/Offset Adjustment


RV103 10k
C116 0.047
C115 0.0
R135 68k
R134 68k
Q106
RV102 10k
Q107
Q105
Q104
IC103
RV104 100k
RV105 100k
Ⓑ
Ⓐ
R133 330k
R123 10k
Q102
R120 10k
100 kΩ
50kΩ
IC102
R125 22k
C113 0.47/50V
R124 4.7k
R122 10k
R115 100
C111 47 16V
VOM
circuit for measuring
VOM
10E 2
10k
1k
1000 16V
0 V DC
or
VTVM
1.4 V AC
oscilloscope
0V
A 2V
B 2V
A = B

Note: Set the sweep time longer as for easy waveform checking.

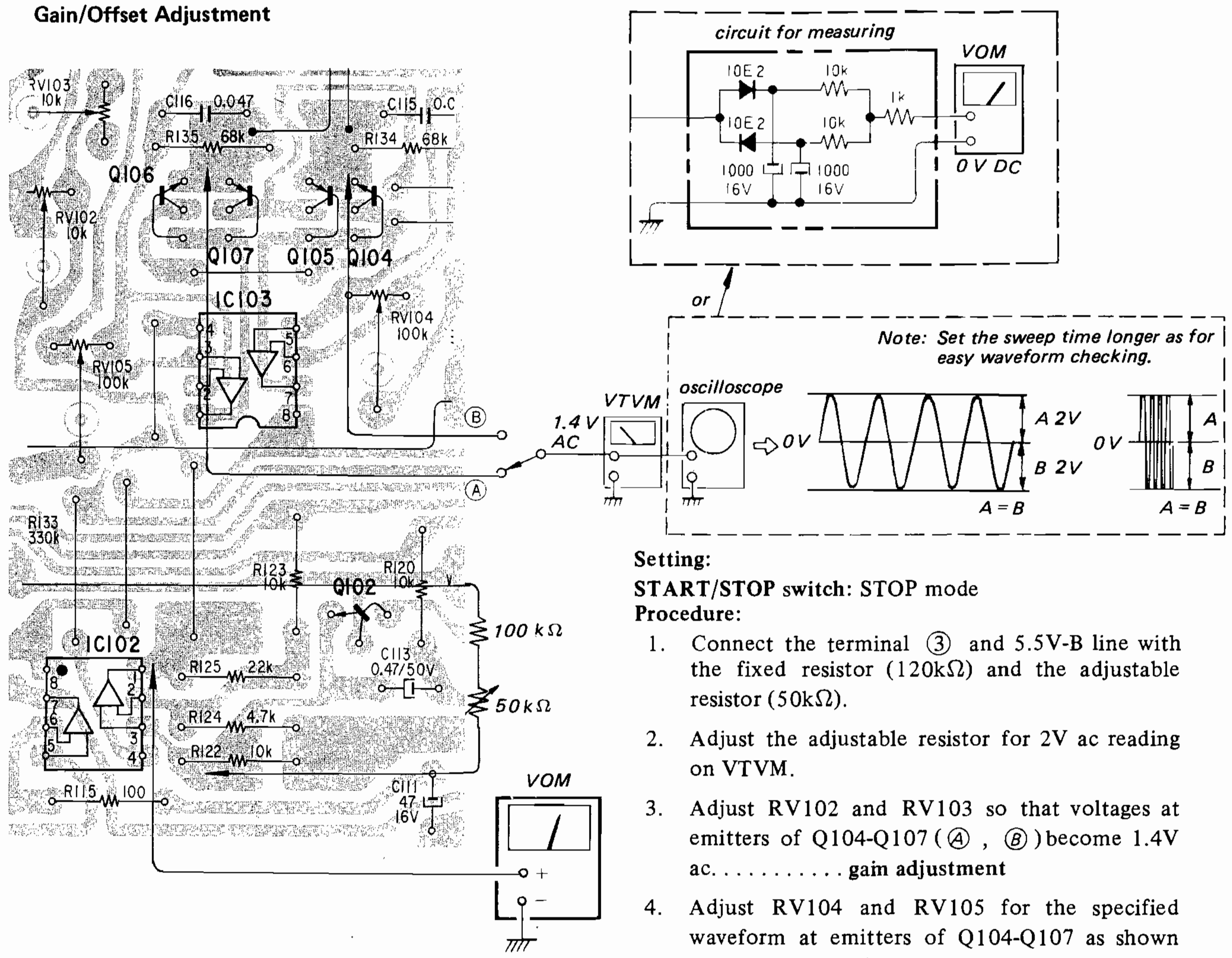
Setting:
START/STOP switch: STOP mode
Procedure:

1. Connect the terminal ③ and 5.5V-B line with the fixed resistor (120kΩ) and the adjustable resistor (50kΩ).
2. Adjust the adjustable resistor for 2V ac reading on VTVM.
3. Adjust RV102 and RV103 so that voltages at emitters of Q104-Q107 (Ⓐ, Ⓑ) become 1.4V ac. . . . . **gain adjustment**
4. Adjust RV104 and RV105 for the specified waveform at emitters of Q104-Q107 as shown above or for 0Vdc on the VTVM. . . . . **offset adjustment**


RV102
RV103
RV105
RV104

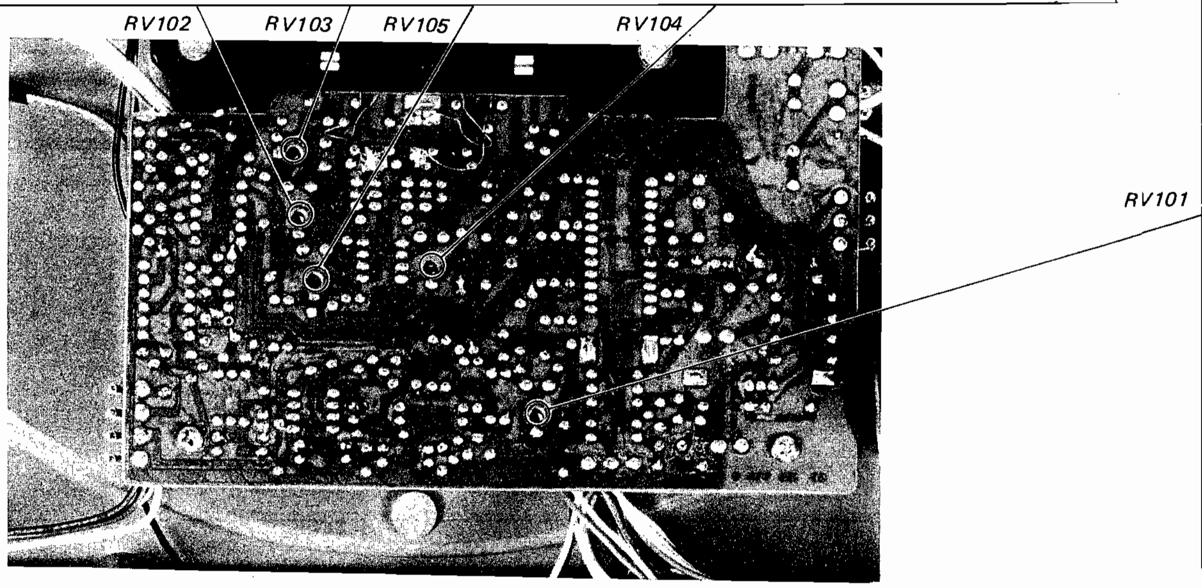
3-2. ELECTRICAL ADJUSTMENTS

Gain/Offset Adjustment


circuit for measuring
VOM
10E2
10k
1k
1000 16V
0 V DC
or
Note: Set the sweep time longer as for easy waveform checking.
VTVM
1.4 V AC
oscilloscope
0V
A 2V
B 2V
A = B
A
B
RV103 10k
C116 0.047
C115 0.C
R135 68k
R134 68k
Q106
Q107
Q105
Q104
RV102 10k
IC103
RV104 100k
RV105 100k
Ⓑ
Ⓐ
R133 330k
R123 10k
Q102
R120 10k
IC102
R125 22k
C113 0.47/50V
R124 4.7k
R122 10k
R115 100
C111 47 16V
100 kΩ
50kΩ
VOM

Setting:
START/STOP switch: STOP mode
Procedure:

1. Connect the terminal ③ and 5.5V-B line with the fixed resistor (120kΩ) and the adjustable resistor (50kΩ).
2. Adjust the adjustable resistor for 2V ac reading on VTVM.
3. Adjust RV102 and RV103 so that voltages at emitters of Q104-Q107 (Ⓐ, Ⓑ) become 1.4V ac. . . . . gain adjustment
4. Adjust RV104 and RV105 for the specified waveform at emitters of Q104-Q107 as shown above or for 0Vdc on the VTVM. . . . . offset adjustment


RV102
RV103
RV105
RV104
RV101

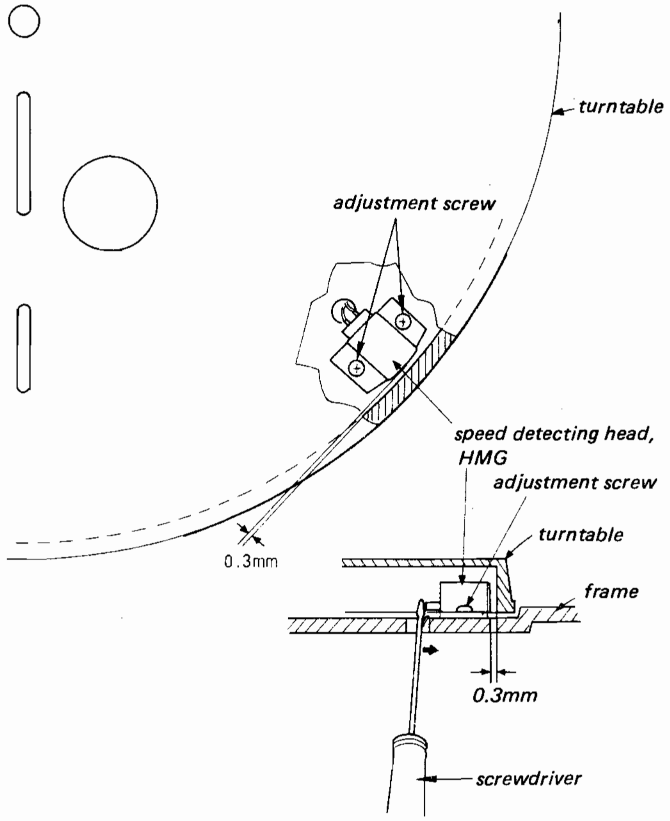
Speed-Detecting Head Output Adjustment

1. Adjust the position of the speed-detecting head by loosening the two screws (TA, B 3 x 10) as shown in the figure so that the VTVM reading is more than 20 mV ac at 33 rpm.
2. Make sure that the head does not touch the turntable and tighten the screws securely.

Note:

- Maladjustment results in wow-flutter.
- The clearance between the magnetic-coated rim and the speed-detecting head is more than 0.3mm.

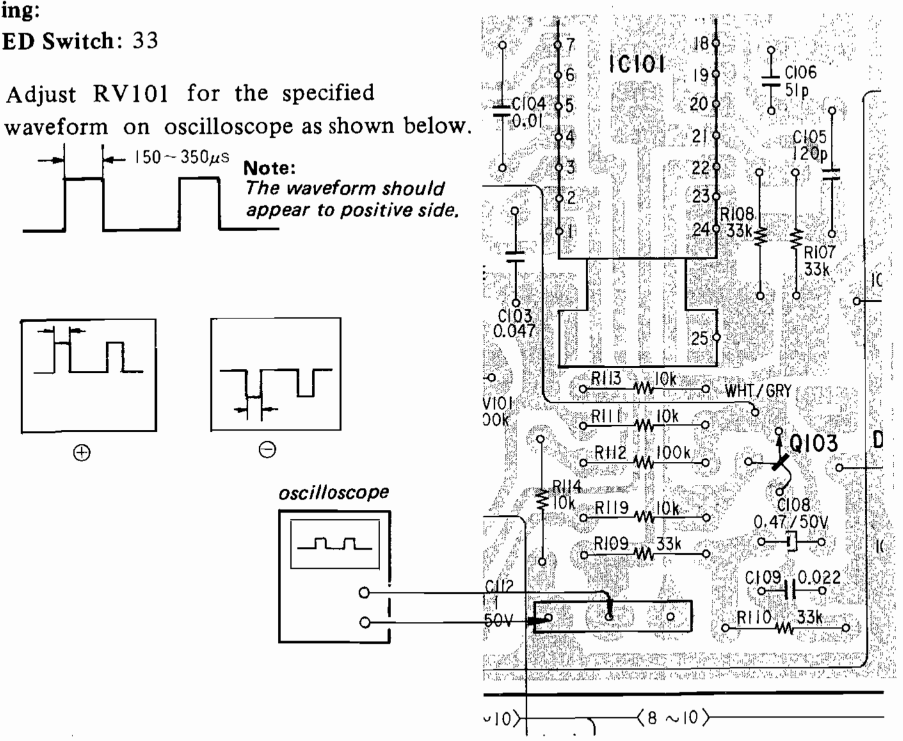
Reference:
Adjust the position of the speed-detecting head by inserting a card (approx. 0.3 mm thick) between the magnetic coating of the turntable and the speed-detecting head.


turntable
adjustment screw
speed detecting head, HMG
adjustment screw
turntable
frame
0.3mm
0.3mm
screwdriver

Speed Adjustment

Setting:
SPEED Switch: 33

1. Adjust RV101 for the specified waveform on oscilloscope as shown below.


150 ~ 350μs
Note: The waveform should appear to positive side.
⊕
⊖
oscilloscope
IC101
C106 51p
C104 0.01
C105 120p
R108 33k
R107 33k
C103 0.047
R113 10k
WHT/GRY
RV101 100k
R111 10k
R112 100k
Q103
R114 10k
R119 10k
C108 0.47/50V
R109 33k
C109 0.022
R110 33k
C112 50V
(8 ~10)

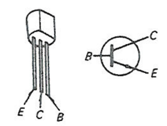
SECTION 4
DIAGRAMS

4-1. MOUNTING DIAGRAM

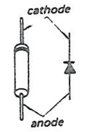
– Conductor Side –

- **Replacement Semiconductors**
  For replacement, use semiconductors except in (   ).

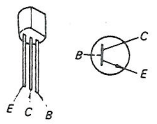
Q101～103 }
Q152～158 } : 2SC1364



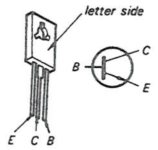
D104 : 1S1555 (1T40)
D105 : HZ9A2-L
D106～109 : 10E2


cathode
anode

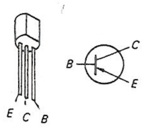
Q104, 106 : 2SC1475



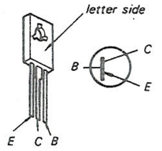
(2SD809)


letter side
C
B
E
E C B

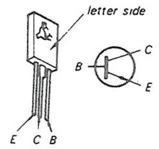
Q105, 107 : 2SA684



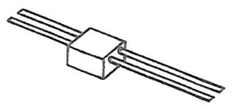
(2SB731)


letter side
C
B
E
E C B

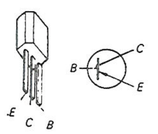
Q108 : 2SD414


letter side
C
B
E
E C B

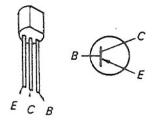
H1, 2 : HL300C



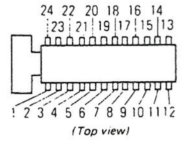
Q151 : 2SA1027R



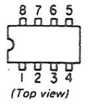
(2SA733)



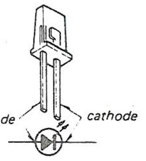
IC101 : CX193


24 22 20 18 16 14
23 21 19 17 15 13
1 2 3 4 5 6 7 8 9 10 11 12
(Top view)

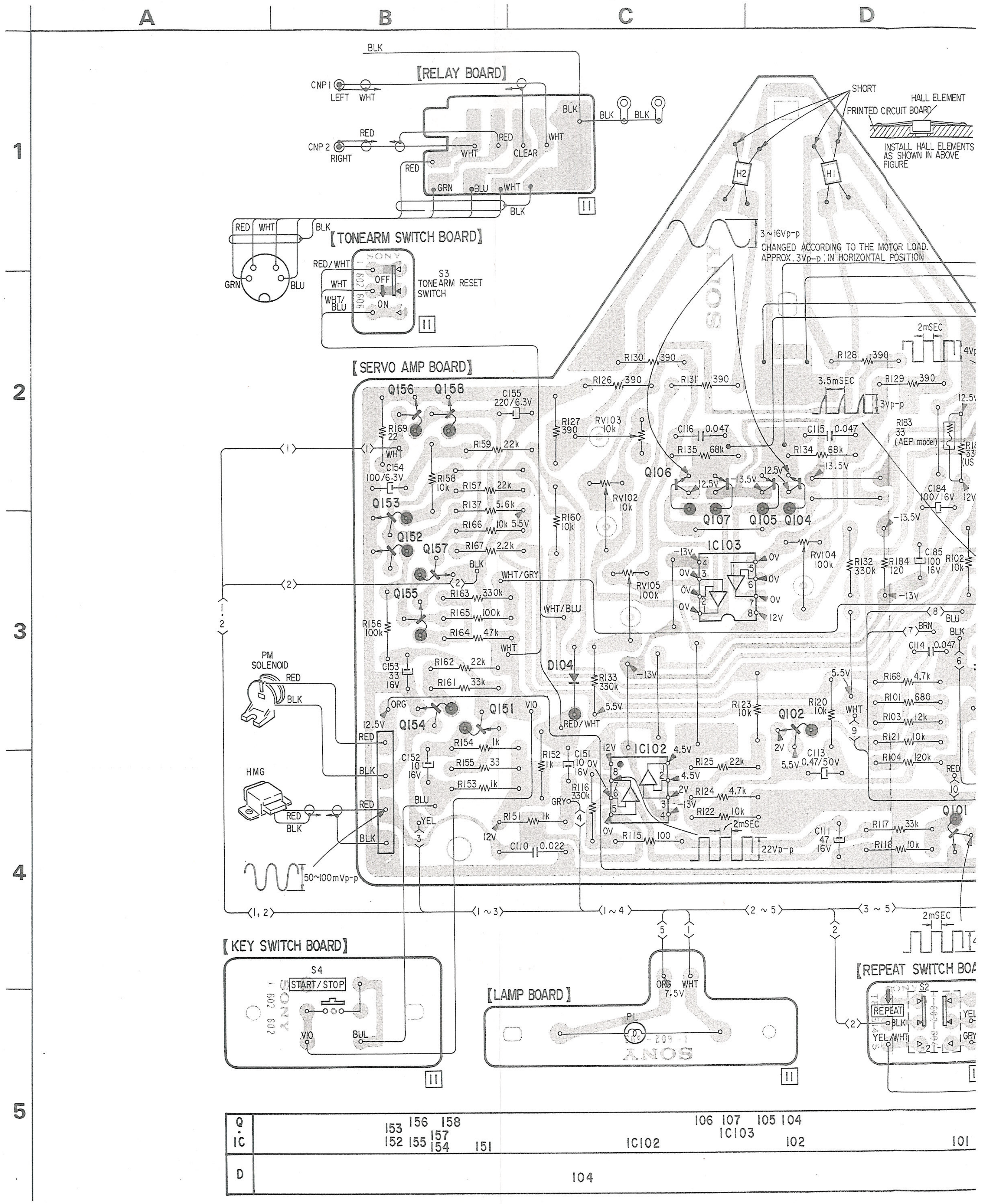
IC102, 103 : μPC4558C (μPC4558)


8 7 6 5
1 2 3 4
(Top view)

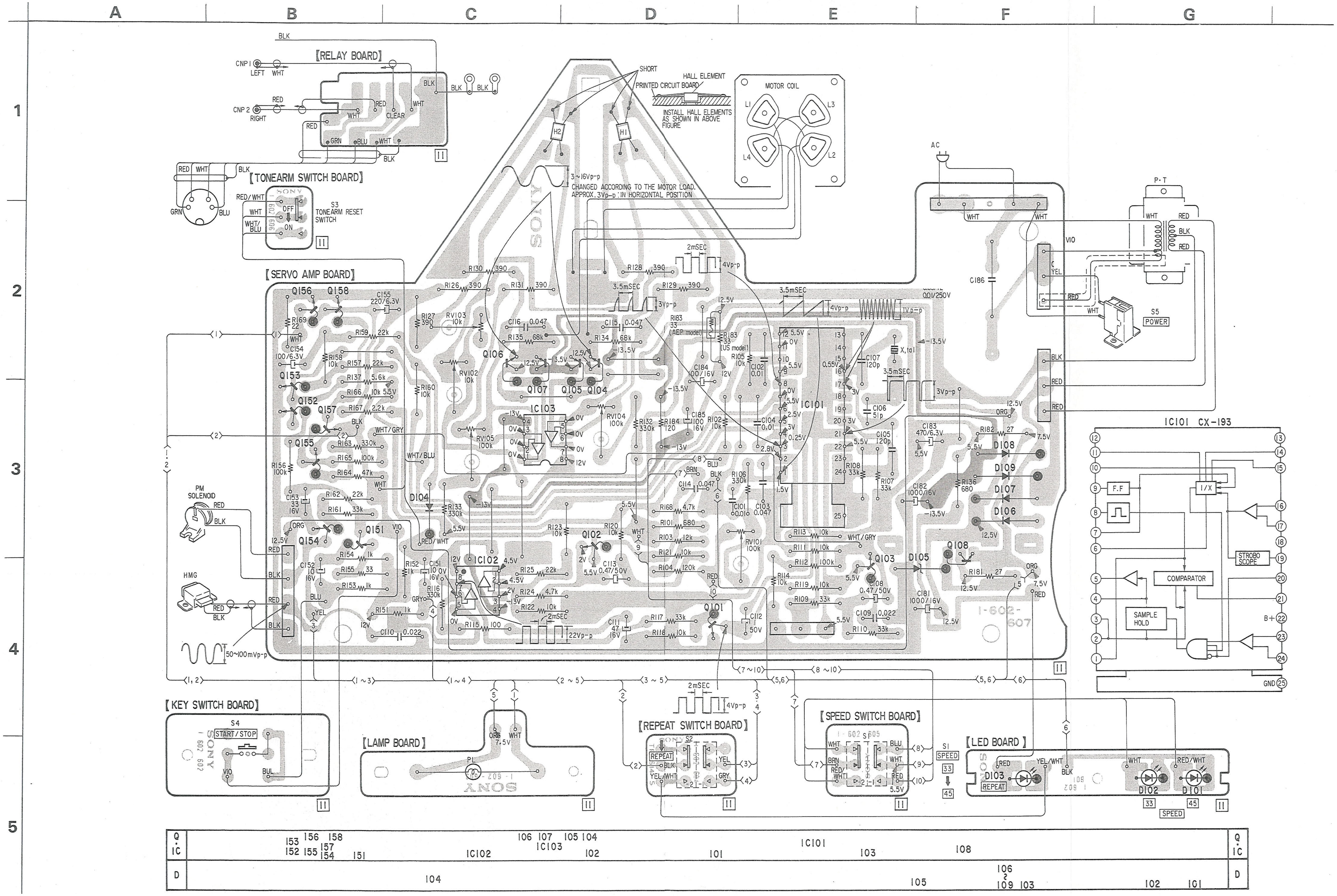
D101～103 : SEL1120R


anode
cathode

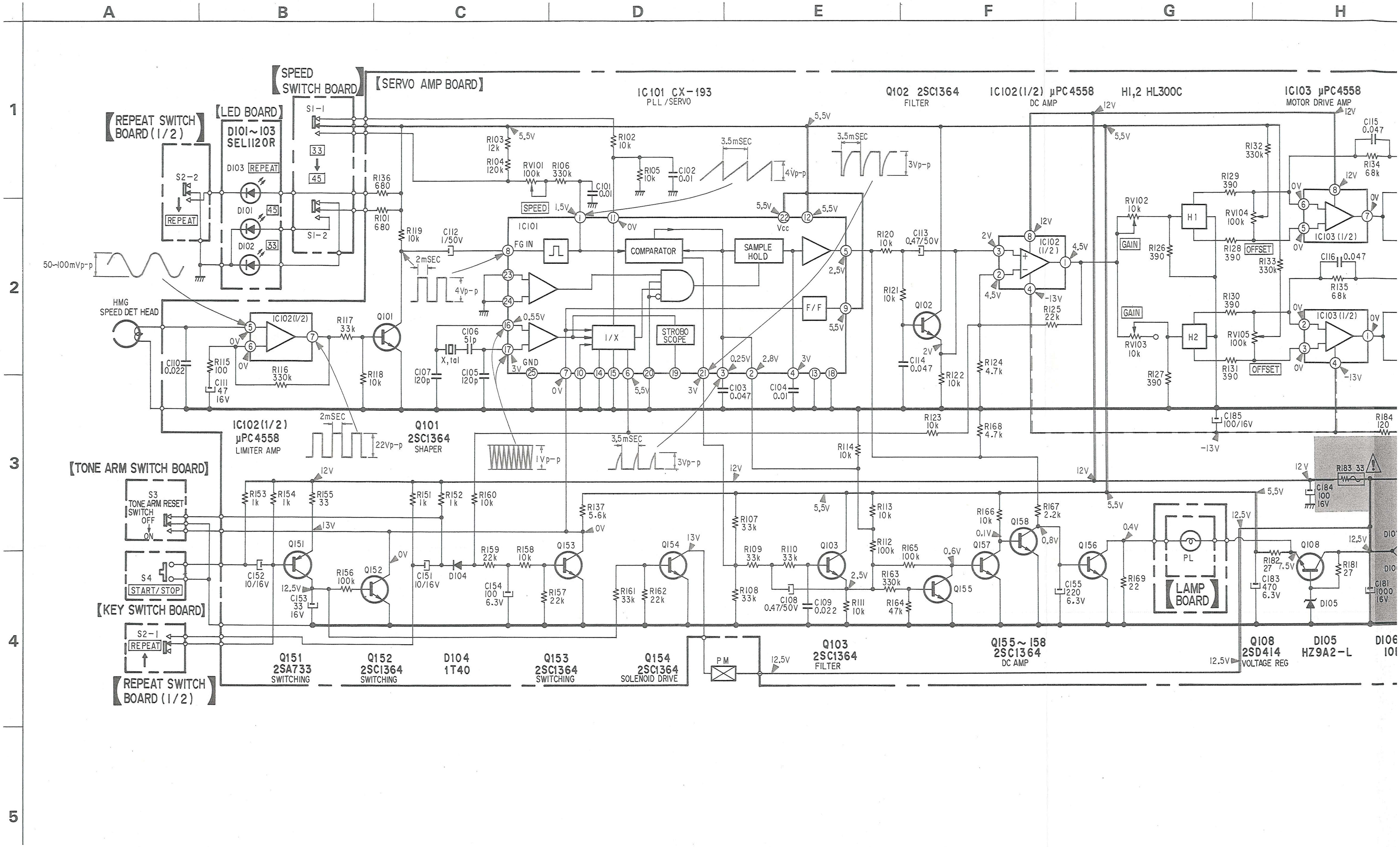
● ▒ : B+ pattern
● ▒ : B– pattern


A
B
C
D
1
2
3
4
5
[RELAY BOARD]
CNP1 LEFT WHT
CNP2 RIGHT
RED
BLK
WHT
CLEAR
GRN
BLU
[TONEARM SWITCH BOARD]
S3 TONEARM RESET SWITCH
OFF
ON
RED/WHT
WHT/BLU
SHORT
PRINTED CIRCUIT BOARD
HALL ELEMENT
INSTALL HALL ELEMENTS AS SHOWN IN ABOVE FIGURE
H1
H2
3～16Vp-p
CHANGED ACCORDING TO THE MOTOR LOAD. APPROX. 3Vp-p : IN HORIZONTAL POSITION
[SERVO AMP BOARD]
Q156
Q158
Q153
Q152
Q157
Q155
Q154
Q151
Q106
Q107
Q105
Q104
Q102
Q101
IC102
IC103
D104
RV102 10k
RV103 10k
RV104 100k
RV105 100k
2mSEC
3.5mSEC
3Vp-p
4Vp-p
22Vp-p
R183 33 (AEP model)
PM SOLENOID
HMG
50～100mVp-p
⟨1, 2⟩
⟨1～3⟩
⟨1～4⟩
⟨2～5⟩
⟨3～5⟩
[KEY SWITCH BOARD]
S4 START/STOP
[LAMP BOARD]
PL
ORG
WHT
7.5V
[REPEAT SWITCH BOARD]
S2
REPEAT

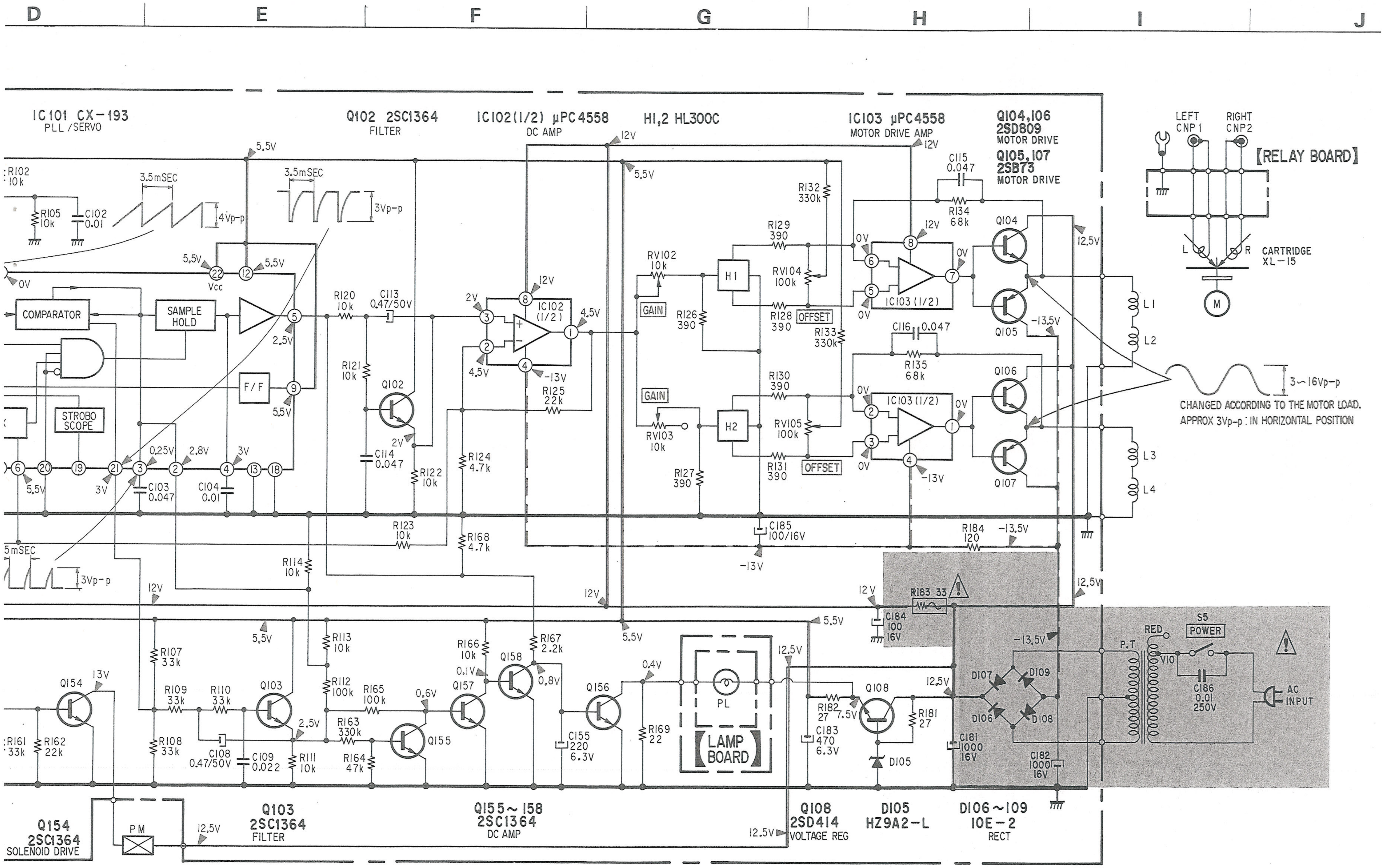
Q·IC	153 152 156 155 158 157 154 151	IC102 106 107 IC103 105 104 102 101
D		104


A
B
C
D
E
F
G
1
2
3
4
5
[RELAY BOARD]
CNP1 LEFT WHT
CNP2 RIGHT RED
CLEAR
[TONEARM SWITCH BOARD]
S3 TONEARM RESET SWITCH
OFF
ON
[SERVO AMP BOARD]
SHORT
HALL ELEMENT
PRINTED CIRCUIT BOARD
INSTALL HALL ELEMENTS AS SHOWN IN ABOVE FIGURE
MOTOR COIL
L1
L2
L3
L4
H1
H2
3~16Vp-p
CHANGED ACCORDING TO THE MOTOR LOAD. APPROX. 3Vp-p : IN HORIZONTAL POSITION
2mSEC
4Vp-p
3.5mSEC
3Vp-p
1Vp-p
22Vp-p
AC
P·T
S5 POWER
C186 0.01/250V
PM SOLENOID
HMG
50~100mVp-p
IC101
IC102
IC103
Q101
Q102
Q103
Q104
Q105
Q106
Q107
Q108
Q151
Q152
Q153
Q154
Q155
Q156
Q157
Q158
D101
D102
D103
D104
D105
D106
D107
D108
D109
1-602-607
IC101 CX-193
F.F
I/X
STROBO SCOPE
COMPARATOR
SAMPLE HOLD
B+
GND
[KEY SWITCH BOARD]
S4 START/STOP
[LAMP BOARD]
PL 7.5V
[REPEAT SWITCH BOARD]
S2 REPEAT
[SPEED SWITCH BOARD]
S1 SPEED 33 45
[LED BOARD]
REPEAT
SPEED
33
45
SONY
Q·IC
D
153 156 158
152 155 157 154
151
IC102
106 107 105 104
IC103
102
101
IC101
103
108
104
105
106 ~ 109 103
102 101

4-2. SCHEMATIC DIAGRAM



A
B
C
D
E
F
G
H
1
2
3
4
5
REPEAT SWITCH BOARD (1/2)
S2-2
REPEAT
LED BOARD
D101~103 SEL1120R
D103 REPEAT
D101 45
D102 33
SPEED SWITCH BOARD
S1-1
33
45
S1-2
SERVO AMP BOARD
R136 680
R101 680
R119 10k
C112 1/50V
2mSEC
4Vp-p
R103 12k
R104 120k
5.5V
RV101 100k
R106 330k
C101 0.01
SPEED
1.5V
R102 10k
R105 10k
C102 0.01
IC101 CX-193
PLL/SERVO
3.5mSEC
4Vp-p
3Vp-p
5.5V
Vcc
0V
IC101
FG IN
COMPARATOR
SAMPLE HOLD
F/F
1/X
STROBO SCOPE
GND
0.55V
2.5V
0.25V
2.8V
3V
C106 51p
X,tal
C107 120p
C105 120p
C103 0.047
C104 0.01
Q102 2SC1364
FILTER
R120 10k
C113 0.47/50V
R121 10k
Q102
C114 0.047
R122 10k
R124 4.7k
R125 22k
IC102(1/2) μPC4558
DC AMP
IC102 (1/2)
12V
-13V
4.5V
2V
H1,2 HL300C
RV102 10k
GAIN
R126 390
RV103 10k
R127 390
H1
H2
R129 390
RV104 100k
R128 390
OFFSET
R130 390
RV105 100k
R131 390
R132 330k
R133 330k
IC103 μPC4558
MOTOR DRIVE AMP
IC103 (1/2)
C115 0.047
R134 68k
C116 0.047
R135 68k
C185 100/16V
-13V
R184 120
R123 10k
R168 4.7k
R114 10k
50~100mVp-p
HMG
SPEED DET HEAD
C110 0.022
R115 100
C111 47 16V
IC102(1/2)
R116 330k
R117 33k
Q101
R118 10k
IC102(1/2)
μPC4558
LIMITER AMP
2mSEC
22Vp-p
Q101
2SC1364
SHAPER
1Vp-p
3.5mSEC
3Vp-p
TONE ARM SWITCH BOARD
S3
TONE ARM RESET SWITCH
OFF
ON
S4
START/STOP
KEY SWITCH BOARD
S2-1
REPEAT
REPEAT SWITCH BOARD (1/2)
R153 1k
R154 1k
R155 33
13V
Q151
C152 10/16V
12.5V
C153 33 16V
R156 100k
Q152
R151 1k
R152 1k
C151 10/16V
D104
R160 10k
R159 22k
R158 10k
C154 100 6.3V
R157 22k
R137 5.6k
Q153
Q154
R161 33k
R162 22k
PM
R107 33k
R109 33k
R110 33k
Q103
C108 0.47/50V
C109 0.022
R108 33k
R111 10k
R113 10k
R112 100k
R165 100k
R163 330k
R164 47k
Q155
R166 10k
0.1V
Q157
Q158
R167 2.2k
0.8V
0.6V
Q156
0.4V
C155 220 6.3V
R169 22
PL
LAMP BOARD
R183 33
C184 100 16V
12.5V
R182 27
7.5V
Q108
R181 27
C183 470 6.3V
D105
C181 1000 16V
Q151 2SA733 SWITCHING
Q152 2SC1364 SWITCHING
D104 1T40
Q153 2SC1364 SWITCHING
Q154 2SC1364 SOLENOID DRIVE
Q103 2SC1364 FILTER
Q155~158 2SC1364 DC AMP
Q108 2SD414 VOLTAGE REG
D105 HZ9A2-L


D
E
F
G
H
I
J
IC101 CX-193
PLL/SERVO
Q102 2SC1364
FILTER
IC102(1/2) µPC4558
DC AMP
H1,2 HL300C
IC103 µPC4558
MOTOR DRIVE AMP
Q104,106
2SD809
MOTOR DRIVE
Q105,107
2SB73
MOTOR DRIVE
[RELAY BOARD]
LEFT CNP1
RIGHT CNP2
CARTRIDGE XL-15
COMPARATOR
SAMPLE HOLD
F/F
STROBO SCOPE
Vcc
3.5mSEC
4Vp-p
3Vp-p
GAIN
OFFSET
RV102 10k
RV103 10k
RV104 100k
RV105 100k
L1
L2
L3
L4
3~16Vp-p
CHANGED ACCORDING TO THE MOTOR LOAD.
APPROX 3Vp-p : IN HORIZONTAL POSITION
R183 33
C184 100 16V
S5 POWER
RED
P.T
AC INPUT
C186 0.01 250V
D106
D107
D108
D109
C181 1000 16V
C182 1000 16V
PL
LAMP BOARD
PM
Q154
2SC1364
SOLENOID DRIVE
Q103
2SC1364
FILTER
Q155~158
2SC1364
DC AMP
Q108
2SD414
VOLTAGE REG
D105
HZ9A2-L
D106~109
10E-2
RECT

Note:

- All capacitors are in µF unless otherwise noted. pF : µµF 50 WV or less are not indicated except for electrolytics.
- All resistors are in ohms, 1/4 W unless otherwise noted. kΩ : 1000 Ω; MΩ : 1000 kΩ
- Switch

Ref. No	Switch	Position
S1	SPEED	33
S2	REPEAT	OFF
S3	TONEARM RESET	OFF
S4	START/STOP	OFF
S5	POWER	OFF

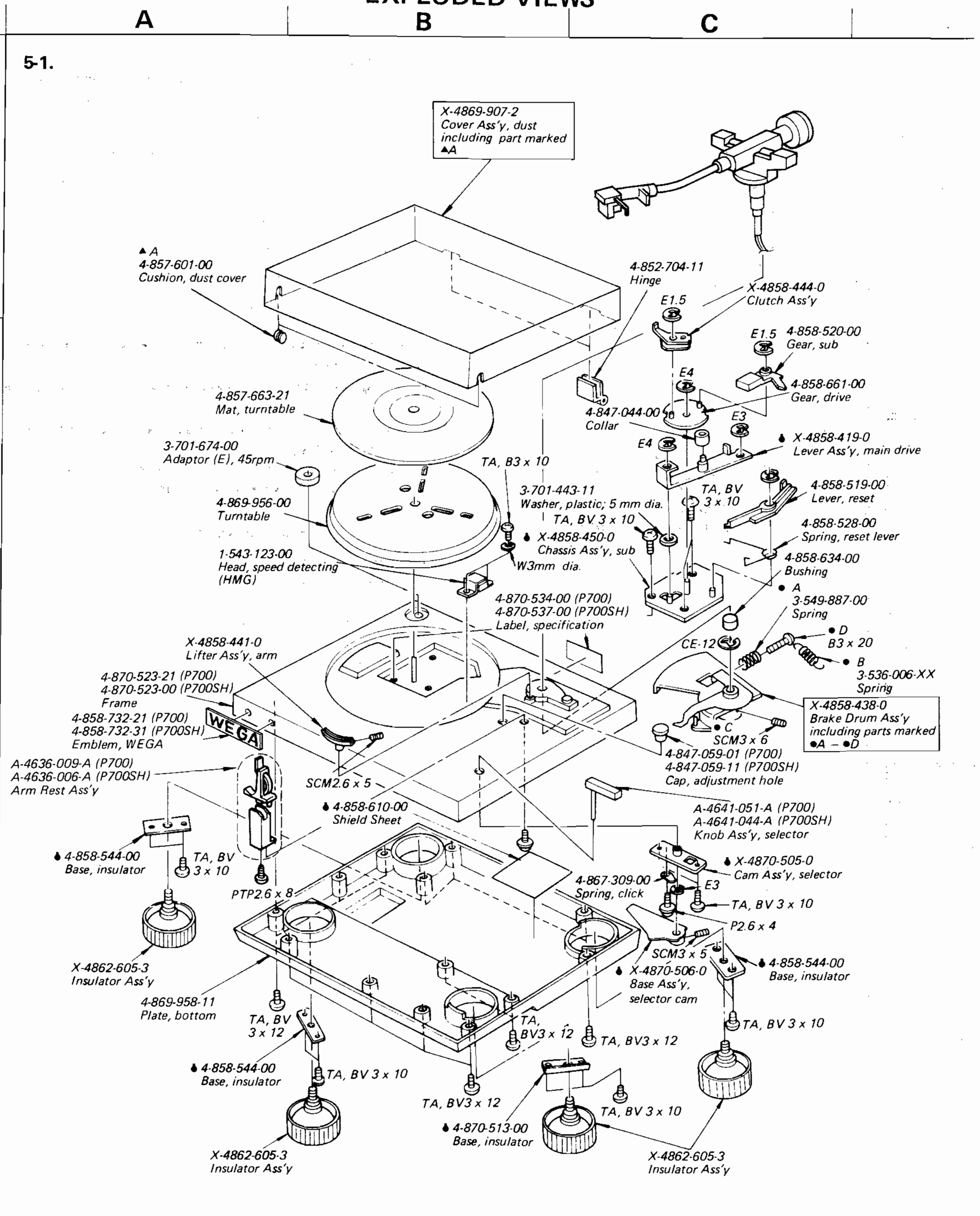
- Voltage variations may be noted due to normal production tolerances.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (20 kΩ/V).
  no mark: when tonearm is settled on the arm rest and S5 (POWER) is turned on.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- ——: B+ bus.
- – – –: B- bus.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

SECTION 5

EXPLODED VIEWS

5-1.

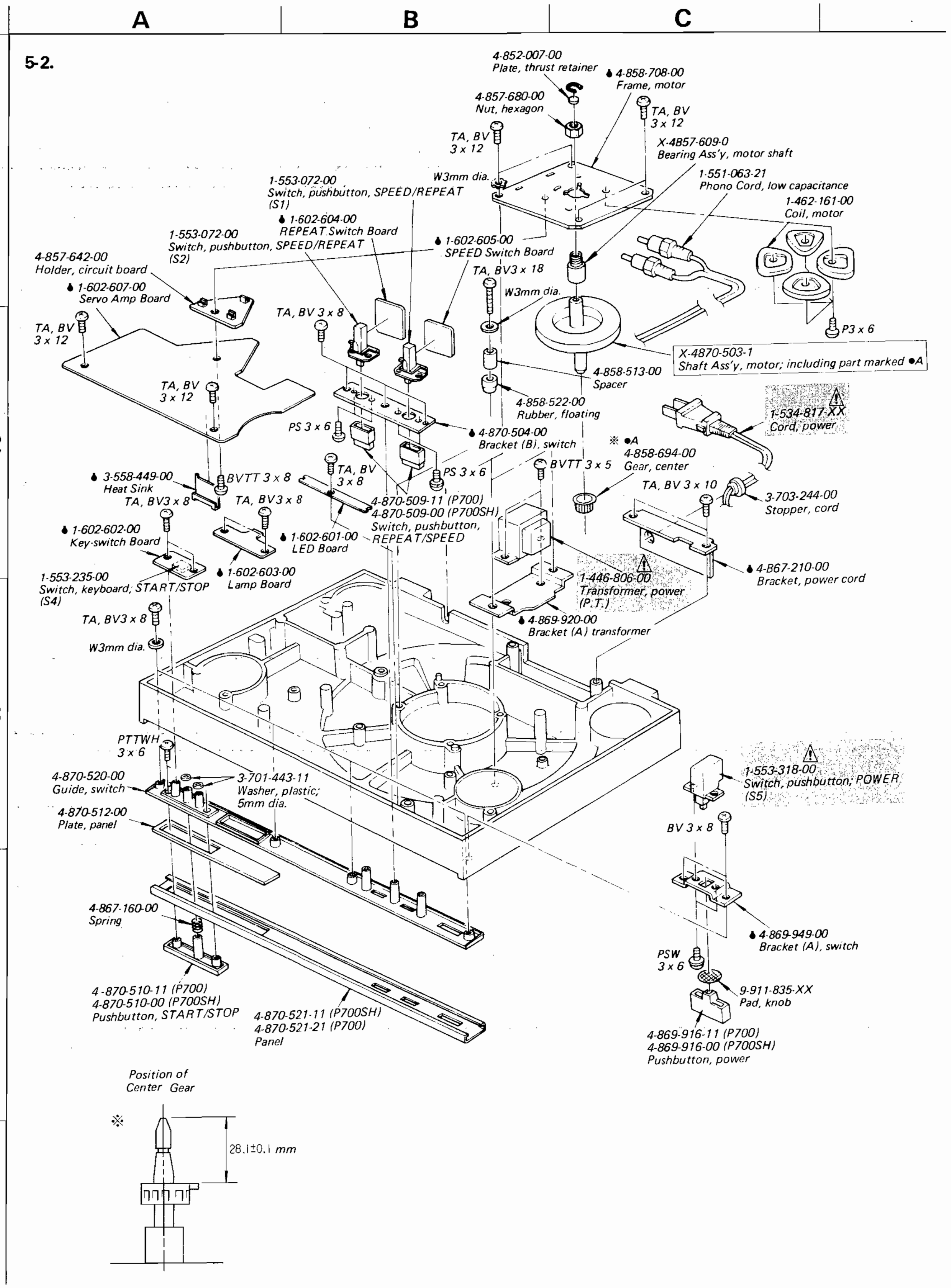

A
B
C
1
2
3
4
X-4869-907-2 Cover Ass'y, dust including part marked ▲A
▲A 4-857-601-00 Cushion, dust cover
4-852-704-11 Hinge
X-4858-444-0 Clutch Ass'y
E1.5
E1.5 4-858-520-00 Gear, sub
E4
4-858-661-00 Gear, drive
4-857-663-21 Mat, turntable
4-847-044-00 Collar
E3
E4
♦ X-4858-419-0 Lever Ass'y, main drive
3-701-674-00 Adaptor (E), 45rpm
TA, B3 x 10
3-701-443-11 Washer, plastic; 5 mm dia.
TA, BV 3 x 10
TA, BV 3 x 10
4-858-519-00 Lever, reset
4-869-956-00 Turntable
♦ X-4858-450-0 Chassis Ass'y, sub
4-858-528-00 Spring, reset lever
W3mm dia.
1-543-123-00 Head, speed detecting (HMG)
4-858-634-00 Bushing
●A 3-549-887-00 Spring
4-870-534-00 (P700) 4-870-537-00 (P700SH) Label, specification
●D B3 x 20
X-4858-441-0 Lifter Ass'y, arm
CE-12
●B 3-536-006-XX Spring
4-870-523-21 (P700) 4-870-523-00 (P700SH) Frame
X-4858-438-0 Brake Drum Ass'y including parts marked ●A – ●D
4-858-732-21 (P700) 4-858-732-31 (P700SH) Emblem, WEGA
WEGA
●C
SCM3 x 6
4-847-059-01 (P700) 4-847-059-11 (P700SH) Cap, adjustment hole
A-4636-009-A (P700) A-4636-006-A (P700SH) Arm Rest Ass'y
SCM2.6 x 5
♦ 4-858-610-00 Shield Sheet
A-4641-051-A (P700) A-4641-044-A (P700SH) Knob Ass'y, selector
♦ 4-858-544-00 Base, insulator
TA, BV 3 x 10
♦ X-4870-505-0 Cam Ass'y, selector
PTP2.6 x 8
4-867-309-00 Spring, click
E3
TA, BV 3 x 10
P2.6 x 4
SCM3 x 5
♦ 4-858-544-00 Base, insulator
X-4862-605-3 Insulator Ass'y
♦ X-4870-506-0 Base Ass'y, selector cam
4-869-958-11 Plate, bottom
TA, BV 3 x 12
TA, BV3 x 12
TA, BV3 x 12
TA, BV 3 x 10
♦ 4-858-544-00 Base, insulator
TA, BV 3 x 10
TA, BV3 x 12
TA, BV 3 x 10
♦ 4-870-513-00 Base, insulator
X-4862-605-3 Insulator Ass'y
X-4862-605-3 Insulator Ass'y

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

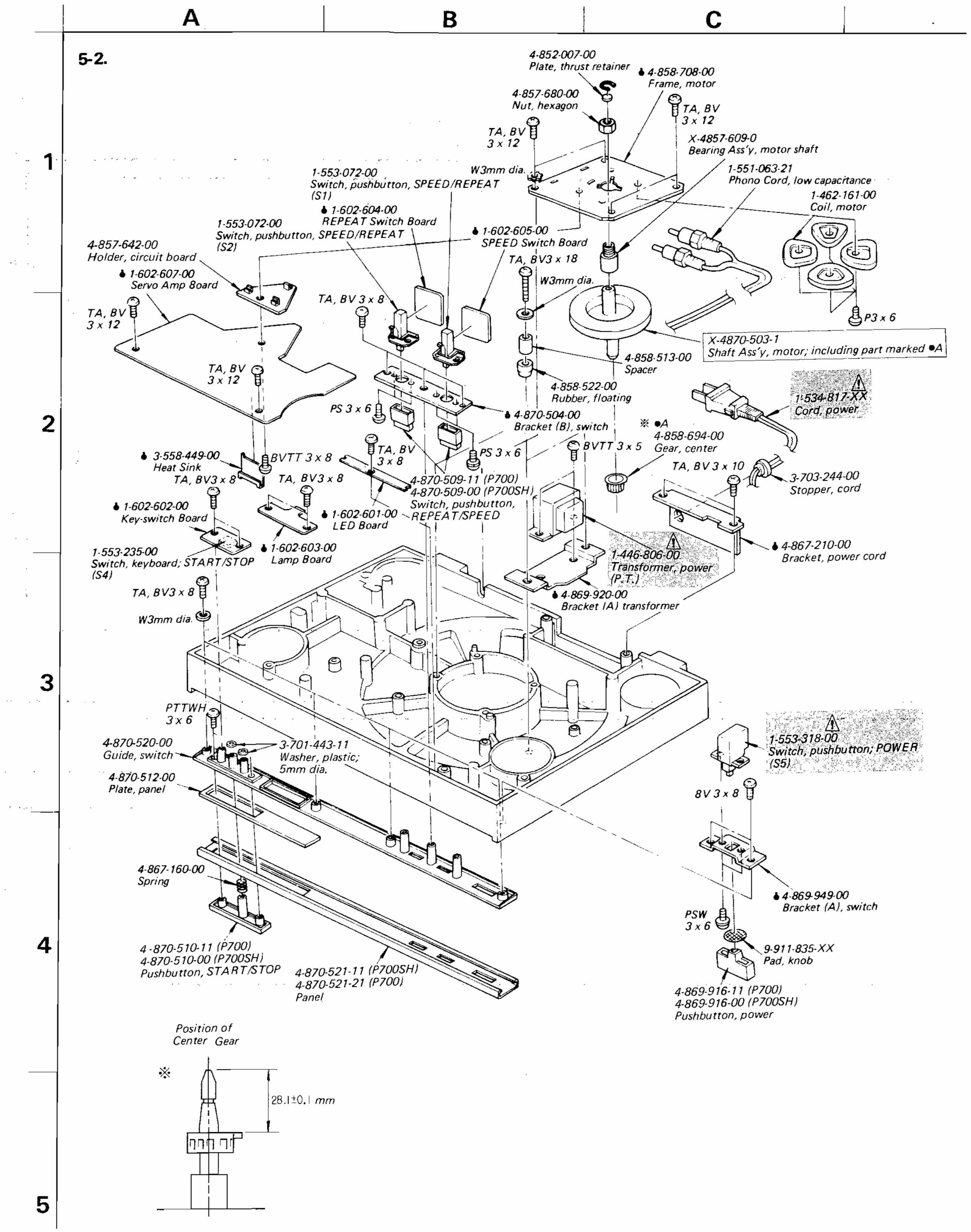
Note:

- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head

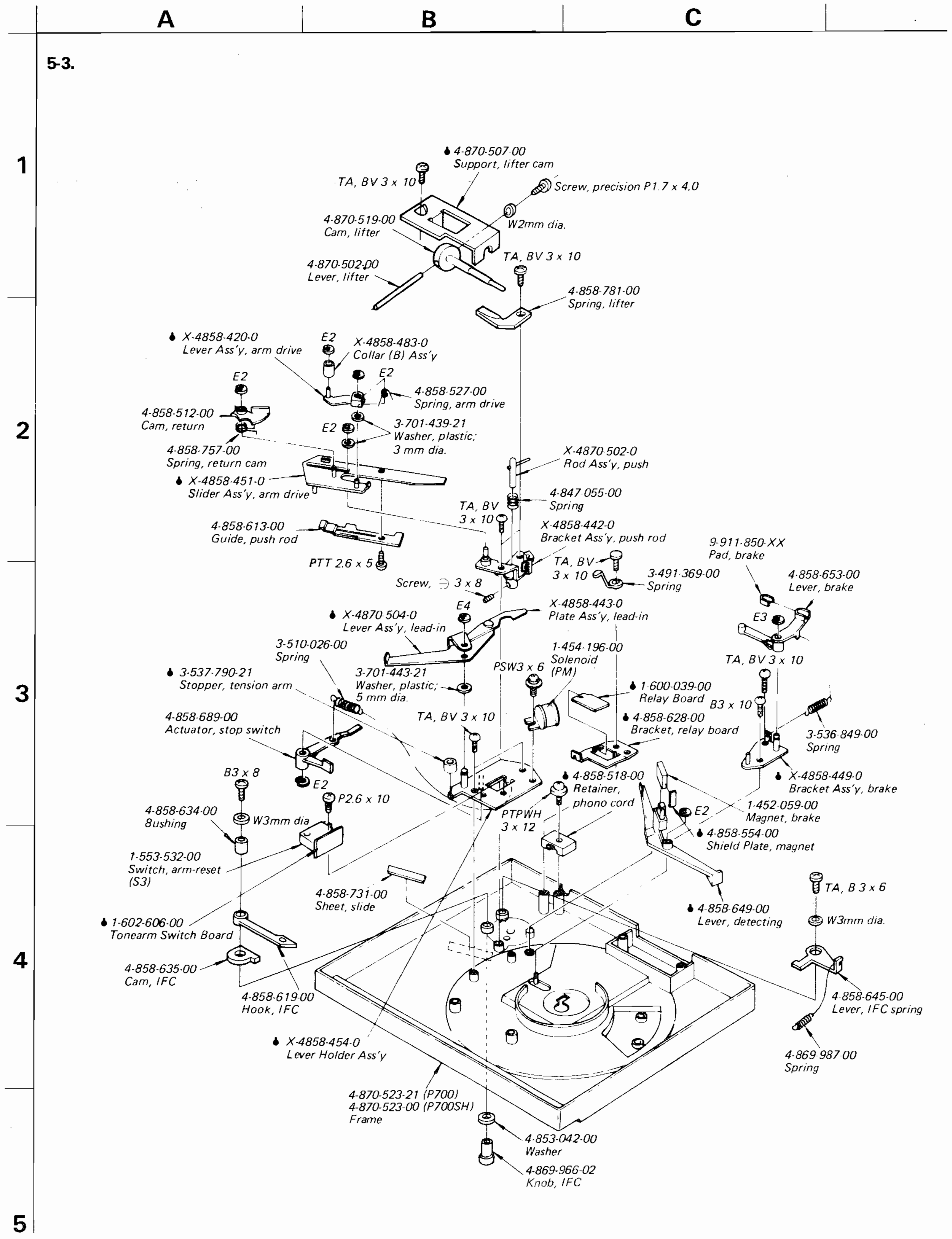
5-2.


A
B
C
1
2
3
4
5
4-852-007-00 Plate, thrust retainer
♦ 4-858-708-00 Frame, motor
4-857-680-00 Nut, hexagon
TA, BV 3 x 12
TA, BV 3 x 12
X-4857-609-0 Bearing Ass'y, motor shaft
1-553-072-00 Switch, pushbutton, SPEED/REPEAT (S1)
W3mm dia.
1-551-063-21 Phono Cord, low capacitance
1-462-161-00 Coil, motor
♦ 1-602-604-00 REPEAT Switch Board
1-553-072-00 Switch, pushbutton, SPEED/REPEAT (S2)
♦ 1-602-605-00 SPEED Switch Board
4-857-642-00 Holder, circuit board
♦ 1-602-607-00 Servo Amp Board
TA, BV3 x 18
W3mm dia.
TA, BV 3 x 8
TA, BV 3 x 12
P3 x 6
X-4870-503-1 Shaft Ass'y, motor; including part marked ●A
4-858-513-00 Spacer
TA, BV 3 x 12
4-858-522-00 Rubber, floating
PS 3 x 6
♦ 4-870-504-00 Bracket (B), switch
1-534-817-XX Cord, power
※ ●A 4-858-694-00 Gear, center
♦ 3-558-449-00 Heat Sink
BVTT 3 x 8
TA, BV 3 x 8
PS 3 x 6
BVTT 3 x 5
TA, BV3 x 8
TA, BV3 x 8
4-870-509-11 (P700) 4-870-509-00 (P700SH) Switch, pushbutton, REPEAT/SPEED
TA, BV 3 x 10
3-703-244-00 Stopper, cord
♦ 1-602-602-00 Key-switch Board
♦ 1-602-601-00 LED Board
♦ 1-602-603-00 Lamp Board
1-553-235-00 Switch, keyboard, START/STOP (S4)
1-446-806-00 Transformer, power (P.T.)
♦ 4-867-210-00 Bracket, power cord
♦ 4-869-920-00 Bracket (A) transformer
TA, BV3 x 8
W3mm dia.
PTTWH 3 x 6
3-701-443-11 Washer, plastic; 5mm dia.
4-870-520-00 Guide, switch
4-870-512-00 Plate, panel
1-553-318-00 Switch, pushbutton, POWER (S5)
BV 3 x 8
4-867-160-00 Spring
♦ 4-869-949-00 Bracket (A), switch
PSW 3 x 6
9-911-835-XX Pad, knob
4-870-510-11 (P700) 4-870-510-00 (P700SH) Pushbutton, START/STOP
4-870-521-11 (P700SH) 4-870-521-21 (P700) Panel
4-869-916-11 (P700) 4-869-916-00 (P700SH) Pushbutton, power
Position of Center Gear
※
28.1±0.1 mm

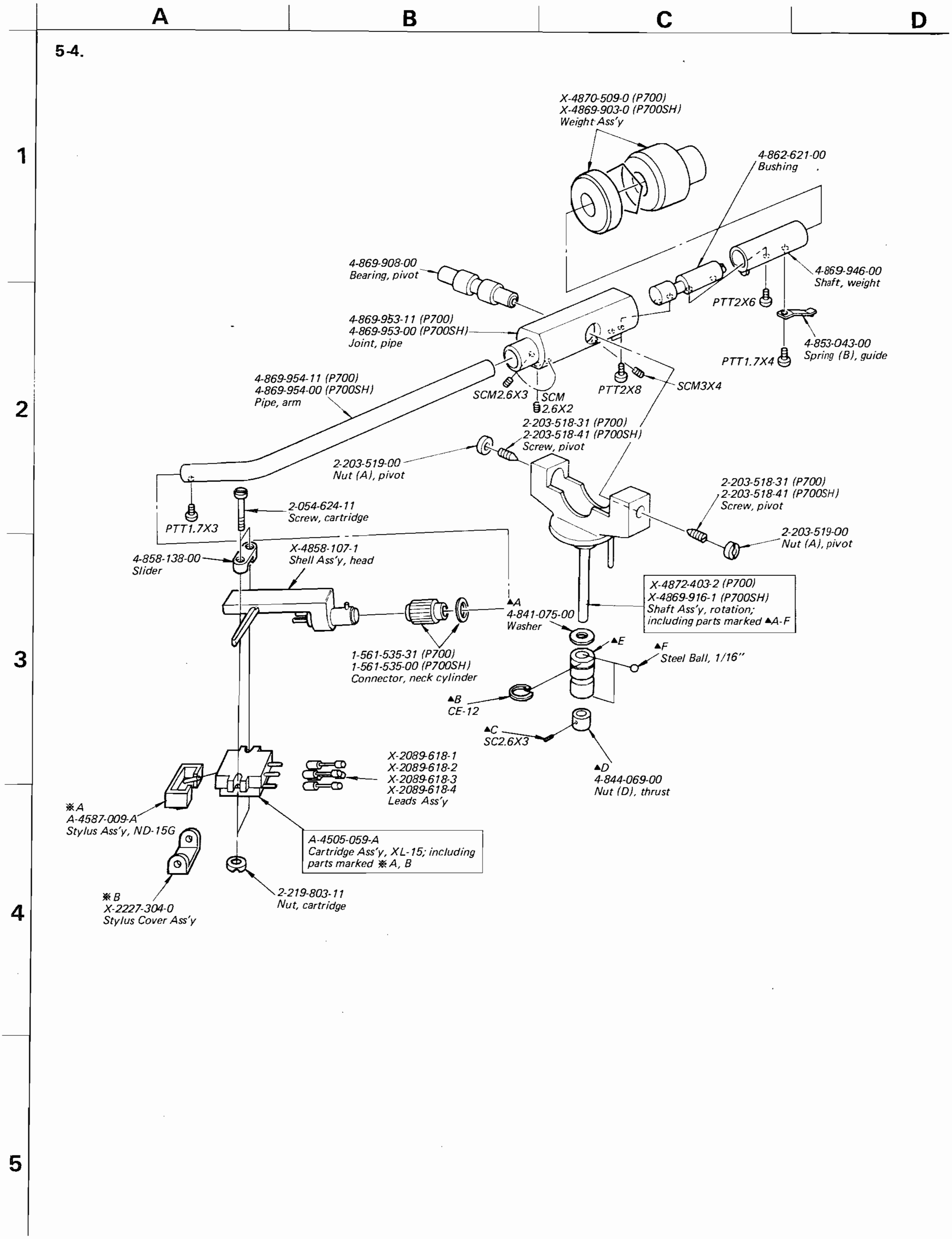
5-2.


A
B
C
1
2
3
4
5
4-852-007-00
Plate, thrust retainer
● 4-858-708-00
Frame, motor
4-857-680-00
Nut, hexagon
TA, BV
3 x 12
TA, BV
3 x 12
X-4857-609-0
Bearing Ass'y, motor shaft
W3mm dia.
1-551-063-21
Phono Cord, low capacitance
1-553-072-00
Switch, pushbutton, SPEED/REPEAT
(S1)
1-462-161-00
Coil, motor
● 1-602-604-00
REPEAT Switch Board
1-553-072-00
Switch, pushbutton, SPEED/REPEAT
(S2)
● 1-602-605-00
SPEED Switch Board
4-857-642-00
Holder, circuit board
TA, BV3 x 18
● 1-602-607-00
Servo Amp Board
W3mm dia.
TA, BV
3 x 12
TA, BV 3 x 8
P3 x 6
X-4870-503-1
Shaft Ass'y, motor; including part marked ●A
4-858-513-00
Spacer
TA, BV
3 x 12
4-858-522-00
Rubber, floating
1-534-817-XX
Cord, power
PS 3 x 6
● 4-870-504-00
Bracket (B), switch
※ ●A
4-858-694-00
Gear, center
● 3-558-449-00
Heat Sink
BVTT 3 x 8
TA, BV
3 x 8
PS 3 x 6
BVTT 3 x 5
TA, BV 3 x 10
TA, BV3 x 8
TA, BV3 x 8
4-870-509-11 (P700)
4-870-509-00 (P700SH)
Switch, pushbutton,
REPEAT/SPEED
3-703-244-00
Stopper, cord
● 1-602-602-00
Key-switch Board
● 1-602-601-00
LED Board
1-446-806-00
Transformer, power
(P.T.)
● 4-867-210-00
Bracket, power cord
1-553-235-00
Switch, keyboard; START/STOP
(S4)
● 1-602-603-00
Lamp Board
● 4-869-920-00
Bracket (A) transformer
TA, BV3 x 8
W3mm dia.
PTTWH
3 x 6
4-870-520-00
Guide, switch
3-701-443-11
Washer, plastic;
5mm dia.
4-870-512-00
Plate, panel
1-553-318-00
Switch, pushbutton; POWER
(S5)
8V 3 x 8
4-867-160-00
Spring
● 4-869-949-00
Bracket (A), switch
PSW
3 x 6
9-911-835-XX
Pad, knob
4-870-510-11 (P700)
4-870-510-00 (P700SH)
Pushbutton, START/STOP
4-870-521-11 (P700SH)
4-870-521-21 (P700)
Panel
4-869-916-11 (P700)
4-869-916-00 (P700SH)
Pushbutton, power
Position of
Center Gear
※
28.1±0.1 mm

5-3.


A
B
C
1
2
3
4
5
● 4-870-507-00
Support, lifter cam
TA, BV 3 x 10
Screw, precision P1.7 x 4.0
4-870-519-00
Cam, lifter
W2mm dia.
TA, BV 3 x 10
4-870-502-00
Lever, lifter
4-858-781-00
Spring, lifter
● X-4858-420-0
Lever Ass'y, arm drive
E2
X-4858-483-0
Collar (B) Ass'y
E2
E2
4-858-527-00
Spring, arm drive
4-858-512-00
Cam, return
E2
3-701-439-21
Washer, plastic;
3 mm dia.
4-858-757-00
Spring, return cam
X-4870-502-0
Rod Ass'y, push
● X-4858-451-0
Slider Ass'y, arm drive
4-847-055-00
Spring
TA, BV
3 x 10
4-858-613-00
Guide, push rod
X-4858-442-0
Bracket Ass'y, push rod
9-911-850-XX
Pad, brake
PTT 2.6 x 5
TA, BV
3 x 10
3-491-369-00
Spring
4-858-653-00
Lever, brake
Screw, ⊖ 3 x 8
E4
X-4858-443-0
Plate Ass'y, lead-in
● X-4870-504-0
Lever Ass'y, lead-in
E3
3-510-026-00
Spring
1-454-196-00
Solenoid
(PM)
TA, BV 3 x 10
● 3-537-790-21
Stopper, tension arm
3-701-443-21
Washer, plastic;
5 mm dia.
PSW3 x 6
● 1-600-039-00
Relay Board
B3 x 10
4-858-689-00
Actuator, stop switch
TA, BV 3 x 10
● 4-858-628-00
Bracket, relay board
3-536-849-00
Spring
B3 x 8
● X-4858-449-0
Bracket Ass'y, brake
E2
● 4-858-518-00
Retainer,
phono cord
P2.6 x 10
1-452-059-00
Magnet, brake
4-858-634-00
Bushing
W3mm dia
PTPWH
3 x 12
E2
● 4-858-554-00
Shield Plate, magnet
1-553-532-00
Switch, arm-reset
(S3)
TA, B 3 x 6
4-858-731-00
Sheet, slide
● 4-858-649-00
Lever, detecting
● 1-602-606-00
Tonearm Switch Board
W3mm dia.
4-858-635-00
Cam, IFC
4-858-619-00
Hook, IFC
4-858-645-00
Lever, IFC spring
● X-4858-454-0
Lever Holder Ass'y
4-869-987-00
Spring
4-870-523-21 (P700)
4-870-523-00 (P700SH)
Frame
4-853-042-00
Washer
4-869-966-02
Knob, IFC

5-4.


A
B
C
D
1
2
3
4
5
X-4870-509-0 (P700)
X-4869-903-0 (P700SH)
Weight Ass'y
4-862-621-00
Bushing
4-869-908-00
Bearing, pivot
4-869-946-00
Shaft, weight
PTT2X6
4-869-953-11 (P700)
4-869-953-00 (P700SH)
Joint, pipe
4-853-043-00
Spring (B), guide
PTT1.7X4
4-869-954-11 (P700)
4-869-954-00 (P700SH)
Pipe, arm
SCM2.6X3
SCM
2.6X2
PTT2X8
SCM3X4
2-203-518-31 (P700)
2-203-518-41 (P700SH)
Screw, pivot
2-203-519-00
Nut (A), pivot
2-203-518-31 (P700)
2-203-518-41 (P700SH)
Screw, pivot
2-054-624-11
Screw, cartridge
PTT1.7X3
2-203-519-00
Nut (A), pivot
4-858-138-00
Slider
X-4858-107-1
Shell Ass'y, head
X-4872-403-2 (P700)
X-4869-916-1 (P700SH)
Shaft Ass'y, rotation;
including parts marked ▲A-F
▲A
4-841-075-00
Washer
▲E
▲F
Steel Ball, 1/16"
1-561-535-31 (P700)
1-561-535-00 (P700SH)
Connector, neck cylinder
▲B
CE-12
▲C
SC2.6X3
▲D
4-844-069-00
Nut (D), thrust
X-2089-618-1
X-2089-618-2
X-2089-618-3
X-2089-618-4
Leads Ass'y
※A
A-4587-009-A
Stylus Ass'y, ND-15G
A-4505-059-A
Cartridge Ass'y, XL-15; including
parts marked ※A, B
※B
X-2227-304-0
Stylus Cover Ass'y
2-219-803-11
Nut, cartridge

SECTION 6
ELECTRICAL PARTS LIST

SEMICONDUCTORS

Transistors

Ref. No.	*Part No.*	*Description*
Q101–103	8-729-663-47	2SC1364
⇒Q104	8-760-413-10	2SC1475
⇒Q105	8-729-468-43	2SA684
⇒Q106	8-760-413-10	2SC1475
⇒Q107	8-729-468-43	2SA684
Q108	8-729-141-43	2SD414
⇒Q151	8-729-612-77	2SA1027R
Q152–158	8-729-663-47	2SC1364

ICs

Ref. No.	*Part No.*	*Description*
IC101	8-751-930-00	CX-193
⇒IC102, 103	8-759-145-58	μPC4558C

Diodes

Ref. No.	*Part No.*	*Description*
D101–103	8-719-311-20	SEL1120R
⇒D104	8-719-815-55	1S1555
D105	8-719-910-92	HZ9A2-L
D106–109	⚠8-719-200-02	10E2
H1, 2	8-719-903-00	HL-300C

CAPACITORS

All capacitors are in μF. Common capacitors are omitted. Refer to the lists on pages 28 and 29 for their part numbers.

Ref. No.	*Part No.*	*Description*		
C106	1-102-491-00	51pF	50V	ceramic
C181, 182	⚠1-123-324-00	1,000	16V	electrolytic (nonpolarized)
C186	⚠1-161-744-00	0.01	250V	ceramic

RESISTORS

All resistors are in ohms. Common ¼W carbon resistors are omitted. Refer to the list on the last page for their part numbers.

Ref. No.	*Part No.*	*Description*		
R183	⚠1-217-393-00	33	¼W	fusible
RV101	1-226-239-00	100K-B, adjustable		
RV102, 103	1-226-236-00	10K-B, adjustable		
RV104, 105	1-226-234-00	100K-B, adjustable		

- ⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

MISCELLANEOUS

Ref. No.	*Part No.*	*Description*
HMG	1-543-123-00	Head, speed detecting
PL	1-518-370-00	Lamp, pilot; 8V, 100mA
PM	1-454-196-00	Solenoid
P.T.	⚠1-446-806-00	Transformer, power
S1, 2	1-553-072-00	Switch, pushbutton, SPEED/REPEAT
S3	1-553-532-00	Switch, arm-reset
S4	1-553-235-00	Switch, keyboard; START/STOP
S5	⚠1-553-318-00	Switch, pushbutton; POWER
X	1-527-380-21	Crystal
	1-452-059-00	Magnet, brake
	1-462-161-00	Coil, motor
	1-551-063-21	Phono Cord, low capacitance
	⚠1-534-817-XX	Cord, power
	1-555-463-00	Lead wire w/connector
	1-561-535-00	Connector, neck cylinder (P700SH)
	1-561-535-31	Connector, neck cylinder (P700)

COMPLETE CIRCUIT BOARDS

Part No.	*Description*
A-4619-156-A	Servo

PRINTED CIRCUIT BOARDS

Part No.	*Description*
♠1-600-039-00	Relay
♠1-602-601-00	LED
♠1-602-602-00	Key-switch
♠1-602-603-00	Lamp
♠1-602-604-00	REPEAT Switch
♠1-602-605-00	SPEED Switch
♠1-602-606-00	Tonearm Switch
♠1-602-607-00	Servo Amp

- Items marked "♠" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

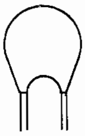
ACCESSORIES & PACKING MATERIALS

Part No.	*Description*
X-4869-915-0	Screw Ass'y, cartridge
X-4870-509-0	Weight Ass'y
3-701-613-00	Bag, polyethylene
3-701-616-00	Bag, polyethylene
3-701-630-00	Bag, polyethylene
3-701-634-00	Bag, polyethylene
3-783-206-11	Manual, instruction
4-847-314-00	Bag, polyethylene
4-848-002-00	Cushion, arm
4-859-049-00	Gauge, tracking error
4-872-414-00	Bag, protection
4-863-668-00	Stopper, gear
4-863-674-00	Adaptor (E), 45rpm
4-869-913-00	Weight, sub
4-869-974-00	Holder, table
4-869-975-00	Cushion, right
4-869-976-00	Cushion, left
4-869-977-00	Package, accessories
4-870-532-00	Carton, individual (P700)
4-870-533-00	Carton, individual (P700SH)
4-870-529-00	Shell Case
4-870-530-00	Shell Label

MYLAR CAPACITORS

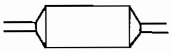
CAP. (µF)	RATING			CAP. (µF)				CAP. (µF)			
	50 VOLT.	100 VOLT.	200 VOLT.		50 VOLT.	100 VOLT.	200 VOLT.		50 VOLT.	100 VOLT.	200 VOLT.
	PART No.	PART No.	PART No.		PART No.	PART No.	PART No.		PART No.	PART No.	PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	–	–
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	–	–
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	–	–
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	–	–
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				

TANTALUM CAPACITORS



CAP. (µF)	RATING				→: Use the high voltage rated one.		
	3.15 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.01					→	→	1-131-396-00
0.015						→	1-131-397-00
0.022						→	1-131-398-00
0.033						→	1-131-399-00
0.047						→	1-131-400-00
0.068					→	→	1-131-401-00
0.1					→	→	1-131-402-00
0.15					→	→	1-131-403-00
0.22					→	→	1-131-404-00
0.33					→	1-131-409-00	1-131-405-00
0.47	–	–	–	–	1-131-412-00	→	1-131-406-00
0.68	–	–	–	1-131-415-00	→	1-131-410-00	1-131-407-00
1.0	–	–	1-131-418-00	–	1-131-413-00	→	1-131-408-00
1.5	–	1-131-421-00	–	1-131-416-00	→	1-131-411-00	1-131-348-00
2.2	1-131-424-00	–	1-131-419-00	–	1-131-414-00	1-131-355-00	1-131-349-00
3.3	–	1-131-422-00	–	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00
4.7	1-131-425-00	–	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00
6.8	–	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	1-131-352-00
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	1-131-359-00	1-131-353-00
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	1-131-360-00	–
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00		
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00			
47	1-131-393-00	1-131-387-00	1-131-381-00	–			
68	1-131-394-00	1-131-388-00	–	–			
100	1-131-395-00	–	–	–			

TANTALUM CAPACITORS



CAP. (µF)	RATING					
	3 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			–	–	1-131-262-00	1-131-278-00
0.33			–	–	1-131-263-00	1-131-279-00
0.47			1-131-169-00	–	1-131-264-00	1-131-280-00
0.68			–	1-131-258-00	1-131-265-00	1-131-281-00
1.0			1-131-254-00	–	1-131-266-00	1-131-282-00
1.5		1-131-250-00	–	–	1-131-267-00	1-131-283-00
2.2		–	–	1-131-259-00	1-131-268-00	1-131-284-00
3.3		–	1-131-255-00	–	1-131-269-00	–
4.7		1-131-251-00	1-131-171-00	–	1-131-270-00	–
6.8		–	–	1-131-260-00	1-131-271-00	–
10	–	–	1-131-256-00	–	1-131-272-00	–
15	–	1-131-252-00	–	1-131-261-00		
22	–	–	1-131-257-00	–		
33	1-131-176-00	1-131-253-00	1-131-173-00	–		
47	1-131-288-00	1-131-174-00	–	–		
100	1-131-177-00					

ELECTROLYTIC CAPACITORS

			RATING		→ : Use the high voltage rated one.	
CAP. (μF)	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00
1.0					→	1-121-391-00
2.2					→	1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	–	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	–
3300	1-121-661-00	1-123-075-00	1-123-071-00	–	–	–

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	–	–	–	–
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	–	1-123-028-00
3.3	1-121-995-00	–	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	–	–
47	1-123-251-00	1-121-919-00	–	–
100	1-123-084-00	–	–	–

CERAMIC CAPACITORS

				RATING			
CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (μF)	50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS

			RATING	→ : Use the high voltage rated one.	
CAP. (μF)	25 VOLT.	50 VOLT.	CAP. (μF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

1/4 WATT CARBON RESISTORS

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-576-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-577-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-578-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-579-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-580-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-581-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-582-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-583-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-584-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-585-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-586-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-587-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw: – P 3 x 10

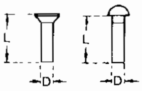
L: Length in mm

D: Diameter in mm

Type of head

Indicated slotted-head only.

Unless otherwise indicated, it means cross-recessed head (Phillips type).

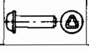
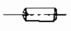
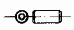
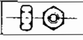
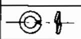


Nut, Washer, Retaining ring: N 3

Diameter of usable screw or shaft

Reference designation

Reference Designation	Shape	Description	Remarks
		SCREWS	
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		braizer-head screw	

Reference Designation	Shape	Description	Remarks
		SELF-TAPPING SCREWS	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	

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